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MANITOBA
ARCHAEOLOGY

Final Report No. 16

THE GARDEN SITE, DkLg-16
A HISTORICAL AND
ARCHAEOLOGICAL STUDY
OF A NINETEENTH CENTURY
METIS FARMSTEAD

DEPARTMENT OF CULTURAL AFFAIRS AND HISTORICAL RESOURCES

1983

IMPORTANT

12 Every person who finds an artifact or a paleontological object or skeletal remains or any object which he suspects might be an artifact or a paleontological object or skeletal remains shall forthwith report the find to the minister in writing.

S.M., 1966-67, c. 22, s. 12.

13(1) No person shall excavate for historic or archaeological research or purposes or search for or excavate for artifacts, paleontological objects or skeletal remains without a valid subsisting permit to do so issued under the regulations.

Manitoba Historic Sites and Objects Act, S.M., 1966 - 67, c. 22, s. 1.

Manitoba Regulation 30/80

Being a Regulation Under The Historic Sites and Objects Act Respecting Permits for Conducting Archaeological or Paleontological Field Research in the Province of Manitoba

(Filed February 29, 1980)

1. Any person wishing to conduct or carry out archaeological or paleontological field research in Manitoba shall first obtain a permit for the purpose from the Historic Resources Branch, Department of Cultural Affairs and Historical Resources.
2. An application for a permit to conduct or carry out archaeological or paleontological field research shall be made on Form 1 attached hereto.
3. There shall be a separate permit for each site or area at which archaeological or paleontological field research is to be carried out.
4. Each permit is subject to the special terms and conditions attached thereto or prescribed thereon.

THE GARDEN SITE, DkLg-16:

A Historical and Archaeological Study of a Nineteenth Century Metis Farmstead

K. David McLeod, Editor

Janet Brockenshire
Diana Brown
S. Biron Ebell
Lori Grant
M. Christopher Kotecki
Peter J. Lambert
Elva Nilson

Historic Resources Branch
Department of Cultural Affairs and
Historical Resources

1983

ERRATA

Page 51, paragraph 2, line 7: "Point Coupé" should read "Pointe Coupée".

Page 51, 3rd line from bottom: "Belleville" should read "Bellefeuille".

Page 96, 1811-12: "(Morton 1967)" should read "(Shipley 1969)".

Pages 96, 97, 1837 to 1843: "(St. Norbert Parish Records)" should read "(St. Norbert Parish Records and Red River Census Data)".

Page 290: "Lambelle" should read "Labelle".

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Abstract

When archaeological investigations were conducted on the site of the Pierre Beauchamp homestead, they represented the first study of Metis on a site where all standing structures had been removed, possibly before the turn of the century. Through Crown Lands records, it was discovered that Pierre Beauchamp purchased the lot in 1845 and the Beauchamp family occupied the site until 1868. It is believed that Pierre Beauchamp participated in cart freighting as well as the semi-annual bison hunts.

Archaeological investigations of the Beauchamp farm consisted of the excavation of three middens or garbage pits. Artifacts recovered in these pits included Copeland ceramics, several varieties of buttons, beads, clay pipe fragments, butchered bone and a variety of weapon-related artifacts including a lock plate from a musket.

The artifacts were dated on the basis of either design or trademarks, such as the ceramics, or by way of manufacturing technique, such as that discernible from bottle glass. Dates ranged from pre-1840 to post-1900 and were well within the time span indicated by documented historical information.

Results of the excavation indicated that the Beauchamps purchased a large portion of their household goods from the Hudson's Bay Company. Ceramic vessels, for example, were likely obtained one at a time, as many individual patterns were recovered, each representing a different vessel. Analysis of the construction-related artifacts showed that there were originally three structures on the

site. This was based on three different log impressions observed on the chinking fragments. Chinking is the clay material used to caulk log structures. Analysis of the chinking also revealed that agriculture was practised near the site as domestic grain seeds, possibly barley, were contained within the matrix of several fragments. Further evidence of agriculture was contained within the faunal material, and suggestive of subsistence strategies were several species of fish, such as goldeye, whitefish and sucker; fifteen bird species including a variety of ducks, geese and a hawk; plus large mammals such as bison, pig and cow. Lastly, at least three different weapons were used by the Beauchamps; a flintlock rifle, a percussion cap rifle, and a pistol.

This publication deals with the environmental, ethnohistorical and archaeological analysis of the Garden Site.

K. David McLeod

Preface

The Garden Site was first detected in the spring of 1978 when historic and prehistoric artifacts were observed in a freshly cultivated garden plot located along the west bank of the Sale River. Among the artifacts were fragments of Copeland ceramics, kaolin pipe fragments, a gunflint, aboriginal ceramic sherds, lithic waste flakes, and a biface.

A casual survey of the community revealed that there was no memory of buildings ever having stood where the artifacts were recovered. The site was part of the property owned by the Trappists and lay about 500 metres from the monastery grounds. Consultation with the monks also provided no indication as to the nature of the historic remains that were being ploughed up in the garden. Because there were so many questions unanswered about the site, it was decided that it would be approrpiate to conduct exploratory excavations in the garden. Therefore, in the spring of 1979, an Opportunities for Youth grant was obtained from the Federal government through the office of the Staff Archaeologist of the Historic Resources Branch, and excavations commenced on June 27.

In anticipation of the summary comments, I would like to present some initial thoughts concerning the importance of this and similar sites to the history of St. Norbert specifically and Manitoba in general. Of significance to this brief discussion is the existence of heritage legislation in most of the provinces, whereby heritage properties, as this site is, can be preserved and protected by law. On the most general level, this implies that property containing heritage resources may not be modified in a manner that disturbs any earth-bound data contained therein. However, there are several options open to the owner of such resources. These include:

1. Protection of the resources by doing nothing with the land;
2. Determining the parameters of the heritage resources and provide suitable management or mitigation;
3. Complete excavation of the resources;
4. Designating the area as a park, providing protection for the resources and thus preserving them.

Of course, all of these options carry within them varying amounts of responsibility to both the "owner" of the resources and to the interested community. In the first instance, the land is not developed. That is, it is allowed to return to its normal state. The heritage resources and information locked within the land then remain for the consideration of future generations. This is probably the least practical and most desirable option in the social scientists' view.

Although part of the mandate of the present study was to determine the parameters of the site, this was in fact not accomplished. Neither the actual extent of the homestead grounds nor the location of the buildings were determined. This must be established before the actual amount of mitigation (i.e., costs) may be calculated.

S. Biron Ebell
Site Director

INTRODUCTION

The excavations at the Garden Site can be viewed as the first detailed examination of Metis archaeology within the Red River valley. Prior to the 1979 excavations, very little work had been accomplished in this area of research and any that had been done was primarily concerned with retrievable information on an architectural basis such as the excavations at the Riel House (Forsman 1977).

Although the sphere of Metis archaeology could be considered a recent development within the geographical context of the Red River, studies have been done of Metis homesteads in the Cypress Hills of Alberta (Bonnichsen, et al. 1973; Elliott 1971) as well as in south-central Alberta (Doll and Kidd 1976). Unlike potential Metis sites along the Red and Sale Rivers, these more westerly sites represented wintering loci used by the more nomadic groups of Metis hunters known as the "Hivernants" (Elliott 1971: 5).

These initial investigations in Metis culture in general and, more specifically, the Hivernant subculture make the Garden Site materials extremely important given that (1) it is one of the premier Red River sites to be excavated, and (2) based on census information, the site occupants were permanent residents; thus, site materials enable us to make comparisons not only cross-culturally, but cross-subculturally as well.

Given these types of underlying and theoretical objectives, it is not too surprising that the results of the Garden Site excavation combine to create quite a voluminous publication. Therefore, the report is divided into two parts. The first part deals with the environmental setting and historical background, while the second presents a description of the prehistoric and historic artifacts plus the faunal remains.

Each chapter is essentially a separate paper dealing with a specific topic. The first chapter describes the environmental setting, not only of the Garden Site but of the Red River area in general. This chapter begins by placing the site within the geographical context of the Red River and its tributaries and continues with a discussion of climate, soils, vegetation and available faunal resources from the standpoint of both the natural environment and agriculture. The theoretical rationale for such an in-depth examination is stated in the introduction of the first chapter and is repeated below:

> Changes in any of the variables which produce the local ecosystems greatly influence the type or amount of cultural material that will be deposited at any one time. An understanding of changes in local and regional weather patterns, vegetation and fauna can be used in the interpretation of the artifacts and ecofacts which are recovered.

The second chapter places the Garden Site within an historical perspective. Rather than being solely informative in the historical sense, this chapter also reveals a variety of sources from which future studies can draw pertinent information. Included within this chapter is a discussion of the history of both the Red River Settlement in general and the community of Saint Norbert in particular; the socio-economic orientation of the French Metis;

a precis of house construction techniques; an examination of the clothing styles c. 1860; and the modes of transportation used during the first three-quarters of the nineteenth century. These last three sections contain a variety of period photos which are used to illustrate the more salient points. Also included, as an appendix, is a discussion of the cost of living in the Red River Settlement during the nineteenth century; most of the data for this section were obtained from the Nor'Wester, the first daily newspaper in the settlement.

The final chapter of the first part is the specific site history and uses the surveys of Duncan Sinclair (1872) and George McPhillips (1874) to place the Garden Site within the river lot system. Once this was accomplished, a large portion of the site history was obtained from Crown Lands records. As in the previous chapter, this third chapter contains a variety of sources from which historical information can be obtained. The third chapter concludes with a discussion of the particular Metis family that inhabited the site, the Beauchamps. From the Manitoba census of 1838, 1840, 1846 and 1849, it was possible to trace the increase in material gains of the head of the household, as well as to draw a comparison of his assets with other males of the community in an attempt to ascertain his relative socio-economic position. Included at the end of this chapter is a chronology of events significant primarily to the Beauchamps and to the Metis cultural group and the Red River Settlement in general.

The second part of the publication specifically deals with the archaeology of the Garden Site and begins with an explanatory chapter describing methods of excavation and stratigraphic sequences observed. Of prime importance to this fourth chapter and those following is the delineation of three features which are interpreted as open-pit middens. A precursory examination of the stratigraphic sequences attempts to hypothesize the sequence of events that transpired in the formation of the three middens. This is mainly done using several zones of flood silt believed to relate to either the 1852 or the 1861 flood.

The fifth chapter contains a brief description of the prehistoric artifact assemblage. Most of these were surface recoveries and, after intensive testing, no *in situ* prehistoric component was found.

The following chapter, the sixth, contains a description and interpretation of the historic artifacts. Most of the interpretive discussion is concerned with establishing artifact relative dates and comparing the three features in terms of quantity and types of artifacts recovered in each.

The artifacts are discussed using functional categories such as Housing and Construction, Household, Clothing, etc. Special artifact discussion is contained within the four appendices at the end of this chapter. These include bead data, coprolitic analysis, cloth analysis and surface artifacts not related to any of the three features.

The seventh chapter deals with the analysis of the faunal remains and the results thereof. A variety of fauna was recovered that includes fish, fowl and wild and domestic mammal remains. Similar to the description of the historic artifacts, the faunal analysis involved a comparison of the three features in terms of number of different species contained in each. A fairly detailed discussion of butchering patterns is also included and identifies which tools were preferred as well as a synthesis of butchering techniques. Contained within the appendix of this chapter is a complete list of the identified faunal remains.

The final chapter is devoted to summary and conclusive statements; the archaeological record is compared with documented history to observe degree of correlation between the two. A model for testing the "ethnicity" of site materials is also introduced.

K. David McLeod
M. Christopher Kotecki

1982

PART I

ENVIRONMENT AND ETHNOHISTORY

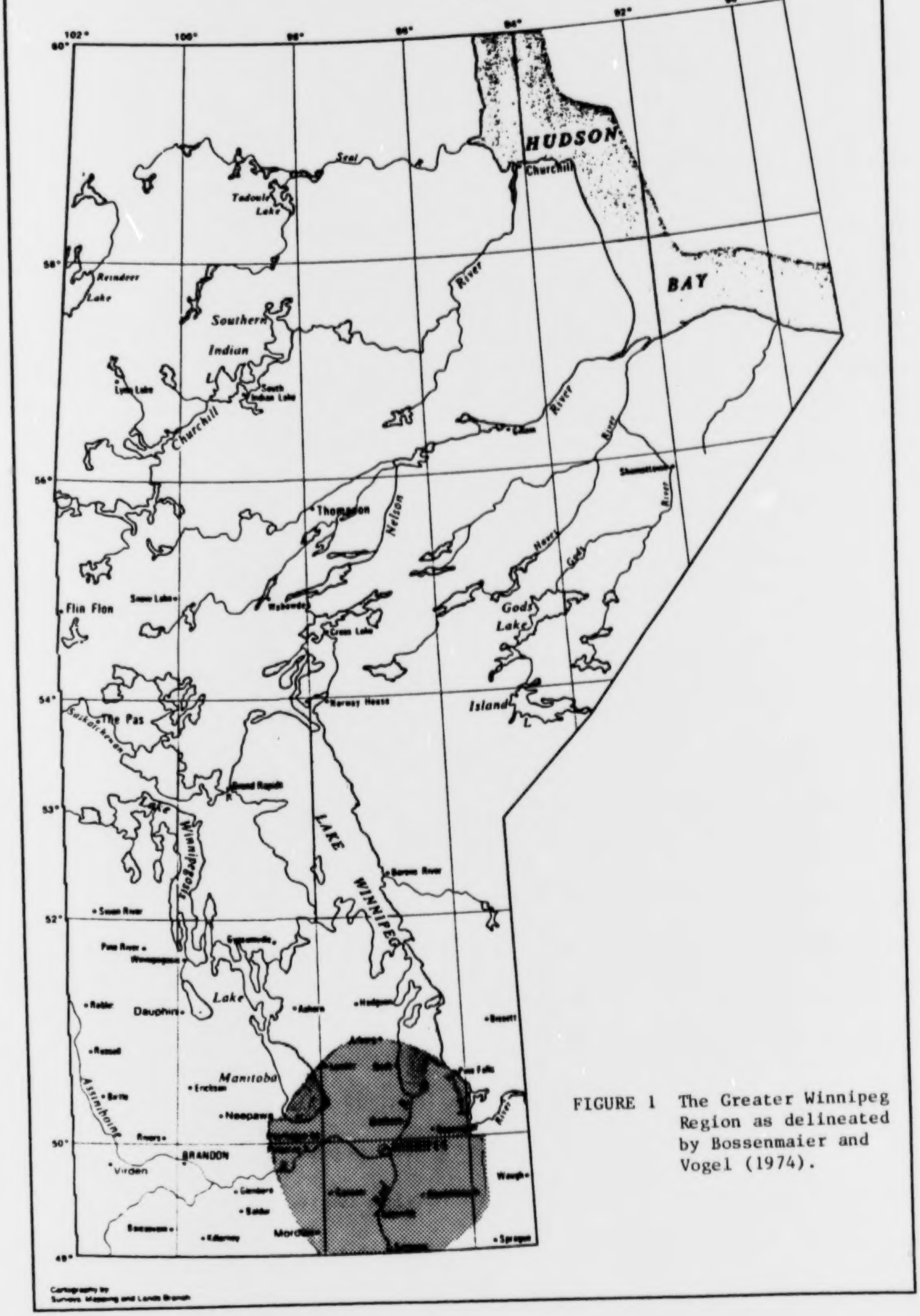
CHAPTER I

THE ENVIRONMENT

Introduction

An essential component of any study such as this is a review of the past and present environmental parameters of the archaeological site itself. In addition, a broader, regional perspective should theoretically be incorporated as well, as more than one ecozone may be exploited by the groups that occupied the site. Changes in any of the variables which produce the local ecosystems greatly influence the type or amount of cultural material that will be deposited at any one time. An understanding of changes in local and regional weather patterns, vegetation, and fauna can be used in the interpretation of the artifacts and ecofacts which are recovered. DkLg-16, being an historic site, permits the use of written records in documenting the site's past environmental conditions. It becomes possible to examine how the occupants utilized the resources in comparison with written accounts of contemporary lifestyles. This can be critical, considering the vast changes produced by urbanization and modern mechanized farming throughout the Red River Valley. A case in point is DkLg-16, which is located in an area that is undergoing massive development of the suburban landscape.

The larger geographical area (Fig. 1) in which the site is located has been delineated the "Greater Winnipeg Region" (Bossenmaier and Vogel 1974), which was utilized to varying degrees by the nineteenth century settlers of the Red River Valley. This section will examine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Reindeer Lake
Southern Indian L.
South Indian Lake
Lynn Lake
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Nelson
Thompson
Hayes
Gods River
Shamattawa
Snow Lake
Flin Flon
Wabowden
Cross Lake
Gods Lake
Norway House
Island L.
The Pas
Saskatchewan
Grand Rapids
Lake Winnipegosis
LAKE WINNIPEG
Berens River
Swan River
Pine River
Winnipegosis
Roblin
Dauphin
Russell
Birtle
Lake Manitoba
Ashern
Hodgson
Bissett
Erickson
Neepawa
Pine Falls
Rivers
Assiniboine
BRANDON
Virden
Glenboro
Baldur
Boissevain
Killarney
Morden
Waugh
Sprague
WINNIPEG
River

Cartography by
Surveys, Mapping and Lands Branch

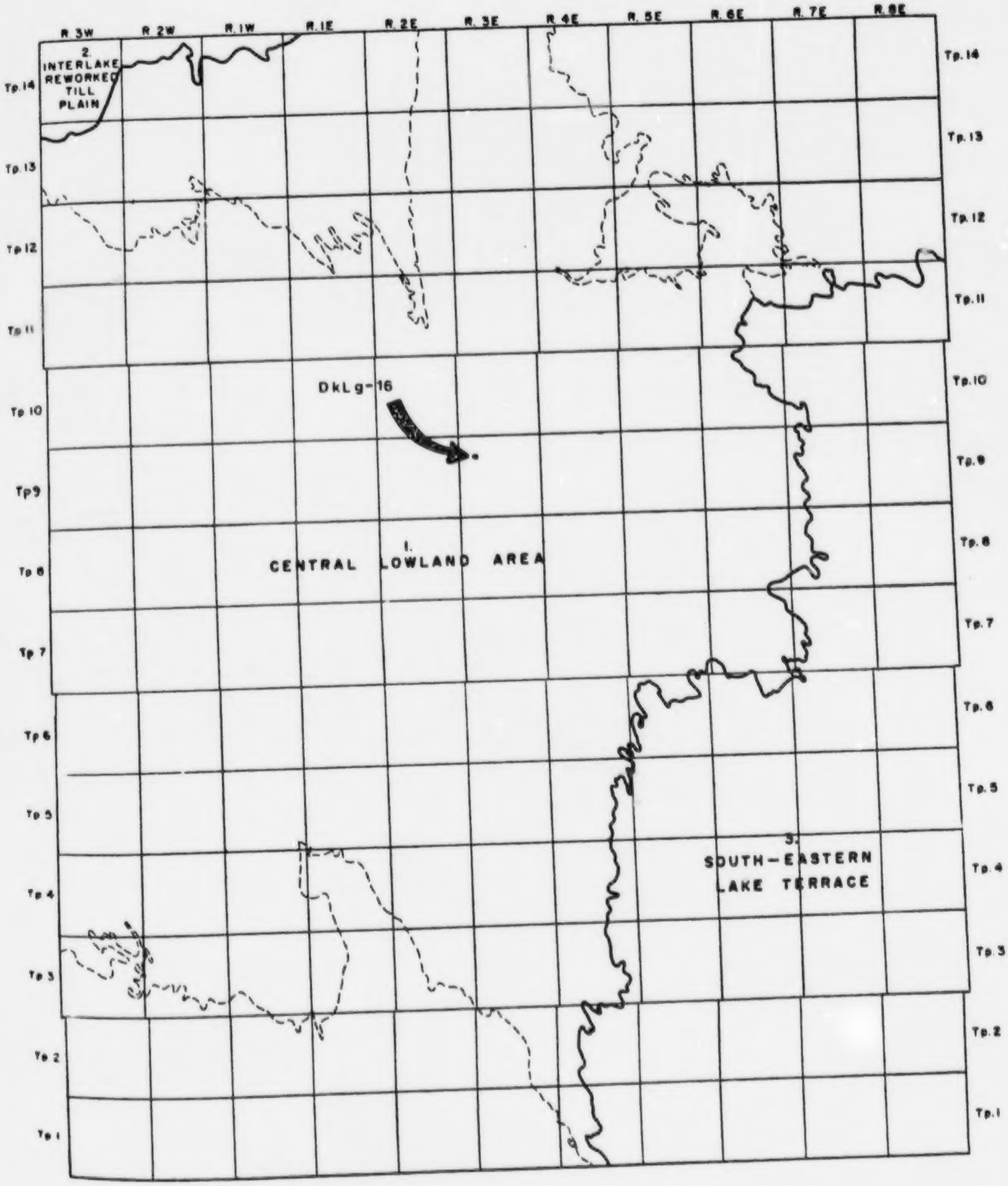
FIGURE 1 The Greater Winnipeg Region as delineated by Bossenmaier and Vogel (1974).

the overall features of the environment, specifying how these influence the immediate area of DkLg-16. This portion of the study is divided into the following sub-sections: the geographical setting, climate, soils and vegetation, and faunal resources.

Geographical Setting

DkLg-16 is located at an elevation of 761 feet (232 meters) a.s.l. within the Red River Valley of the Central Lowlands of Manitoba. The Central Lowlands is a clay basin of flood plains and river levees. It is bounded on the west by the foot of the Manitoba Escarpment (950 feet or 290 meters a.s.l.) and on the east by the South-Eastern Lake Terrace Complex (850 feet or 259 meters a.s.l.). The valley extends from Lake Traverse in Minnesota in the south to Lake Winnipeg in the north (Ehrlich, et al. 1953:4). This area is part of the First Prairie Level which forms the greater part of the glacial Lake Agassiz basin (Mackintosh 1934).

The component surface features of the area (Fig. 2) are the result of (1) the final glaciation of North America, when an ice mass over a mile thick covered central Manitoba, and (2) the subsequent ice recession during the late Pleistocene warming trend. The ice began receding from the southern end of the Red River basin (at Lake Traverse, Minnesota) prior to 13,500 B.P. (Moran, et al. 1976:152). This combination of events resulted in the deposition of glacial till in the form of an unstratified mixture of boulders, gravel, sand, silt, and clay, at depths ranging from 20 to 200 feet. The meltwater from the ice mass formed the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Tp. 8
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Tp. 4
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Tp. 1
2. INTERLAKE REWORKED TILL PLAIN
DkLg-16
1. CENTRAL LOWLAND AREA
3. SOUTH-EASTERN LAKE TERRACE

FIGURE 2 Landscape areas and sub-areas (Ehrlich et al., 1953:5).

extensive freshwater Lake Agassiz that eventually covered most of Manitoba. Subsequent wave action, water movement, lacustrine sedimentation and alluviation modified and buried the glacial till deposits, creating a flat level basin that is now the Red River Valley.

The rivers that transported material to the shrinking Lake Agassiz have since become tributaries of the Red River drainage system (Ehrlich, et al. 1953). The major tributary of the Red River is the Assiniboine River, flowing from the west. The remaining streams that originate to the west are intermittent and slow-moving. This is primarily due to the level nature of the topography, which possesses a gradient of less than two feet per mile. These small rivers are the Plum, Morris, Marais, and Sale (Ehrlich, et al. 1953). Alexander Henry the the Younger describes the Sale as:

> ... [a] small river [which] comes from the W., taking its waters nearly opposite Portage la Prairie, in a long marsh, not above a mile from the Assiniboine. Its first course is S. for several miles, when it takes a sudden bend and runs E. until it empties into the Red River, forming the N. boundary of the great meadows of this river (Henry, in Coues 1965: 55-56).

The level nature of the surface results in the development of extensive marshes and wet meadows. This condition was found to the north and west of St. Norbert (Bossenmaier and Vogel 1974; Kane 1925), and was not altered until the construction of man-made drainage ditches in the twentieth century (Ehrlich, et al. 1953).

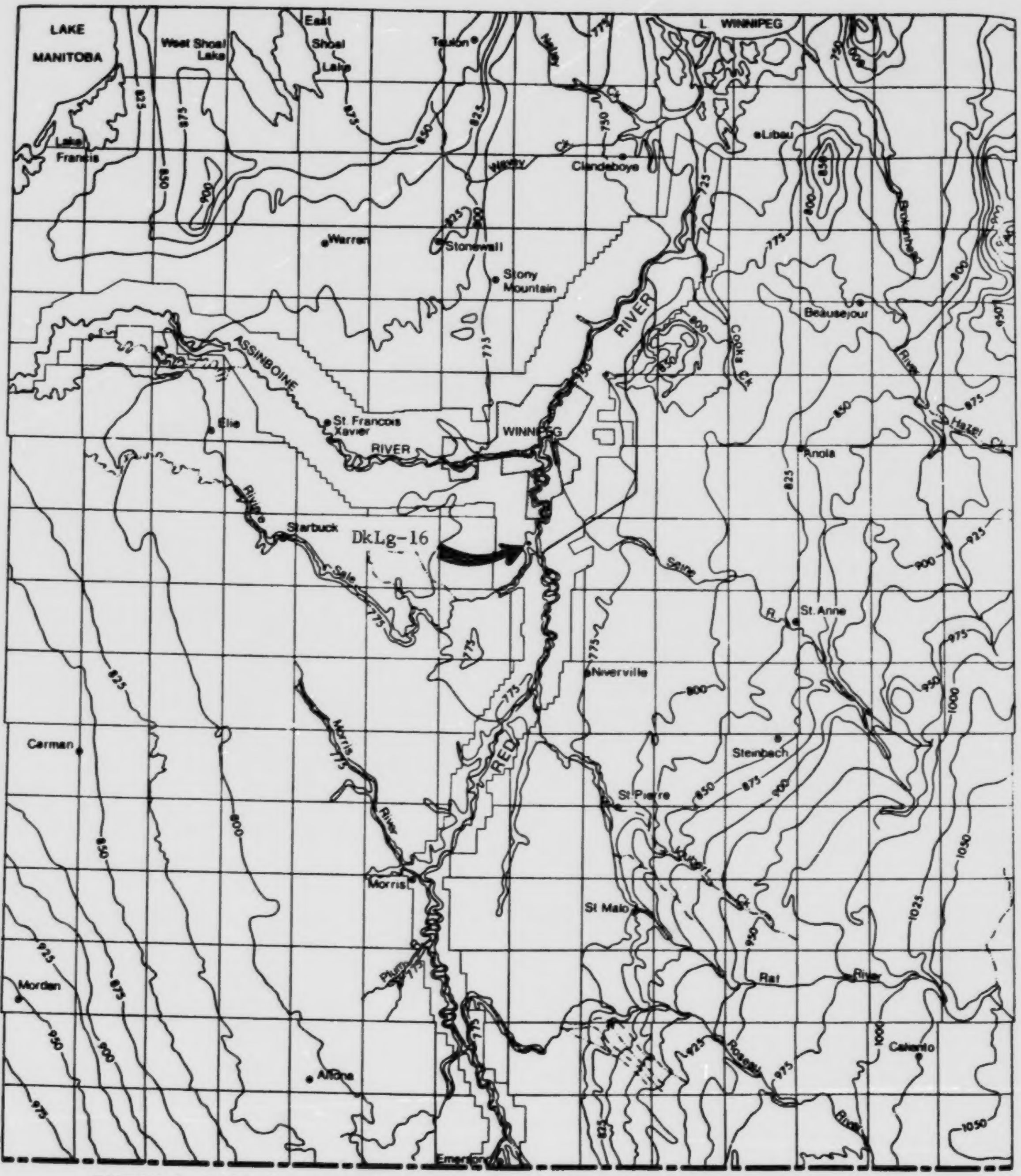
The tributaries of the eastern half of the Red River Valley are the Roseau, Joubert, Seine, Rat, and Marsh rivers, and Cooks Creek.

These are less erratic in that they receive a continuous water supply from the bogs and swamps to the east of the valley. In addition, there is a greater change in grade that produces a faster flow. See Fig. 3 for the topography and drainage system.

The Red River Valley is subject to periodic flooding due to a variety of factors, not the least of which is the level aspect of the land. As a result, water overflowing the banks of the Red and Assiniboine spread quickly over the adjacent valley floor.

The variables contributing to flooding in the Red River Valley have been discussed by Labelle, *et al.* (1966) and Ehrlich, *et al.* (1953), and are primarily climatic. DkLg-16, at 762 feet (232 meters) above sea level, would have been under flood waters in the following years: 1861, 1852, 1826, and perhaps in 1966, 1950, 1897, 1882, 1809, 1790 and 1776 (Table 1).

Flooding and its effects should be considered when examining site conditions, as should the impacts upon the occupants, viz, what responses would or might have been initiated; did they abandon or return to their flooded homes? Ross (1972) describes the disruption caused to farming and housing and, in some cases, the responses to the floods of 1826 and 1852. Figure 4 shows the extent of inundation during the 1950 flood which was quite extensive but still four feet (1.2 meters) below the devastating flood which Alexander Ross described for 1826.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West Shoal Lake
East Shoal Lake
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Lake Francis
Libau
Clandeboye
Warren
Stonewall
Stony Mountain
Beausejour
ASSINIBOINE
RIVER
St. Francois Xavier
WINNIPEG
Elie
Anola
Starbuck
DkLg-16
Seine
St. Anne
Niverville
Carman
Morris
Steinbach
St Pierre
St Malo
Rat River
Morden
Altona
Caliento
Roseau River
Emerson
RED
Cooks Ck
Hazel Ck
775
800
825
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925
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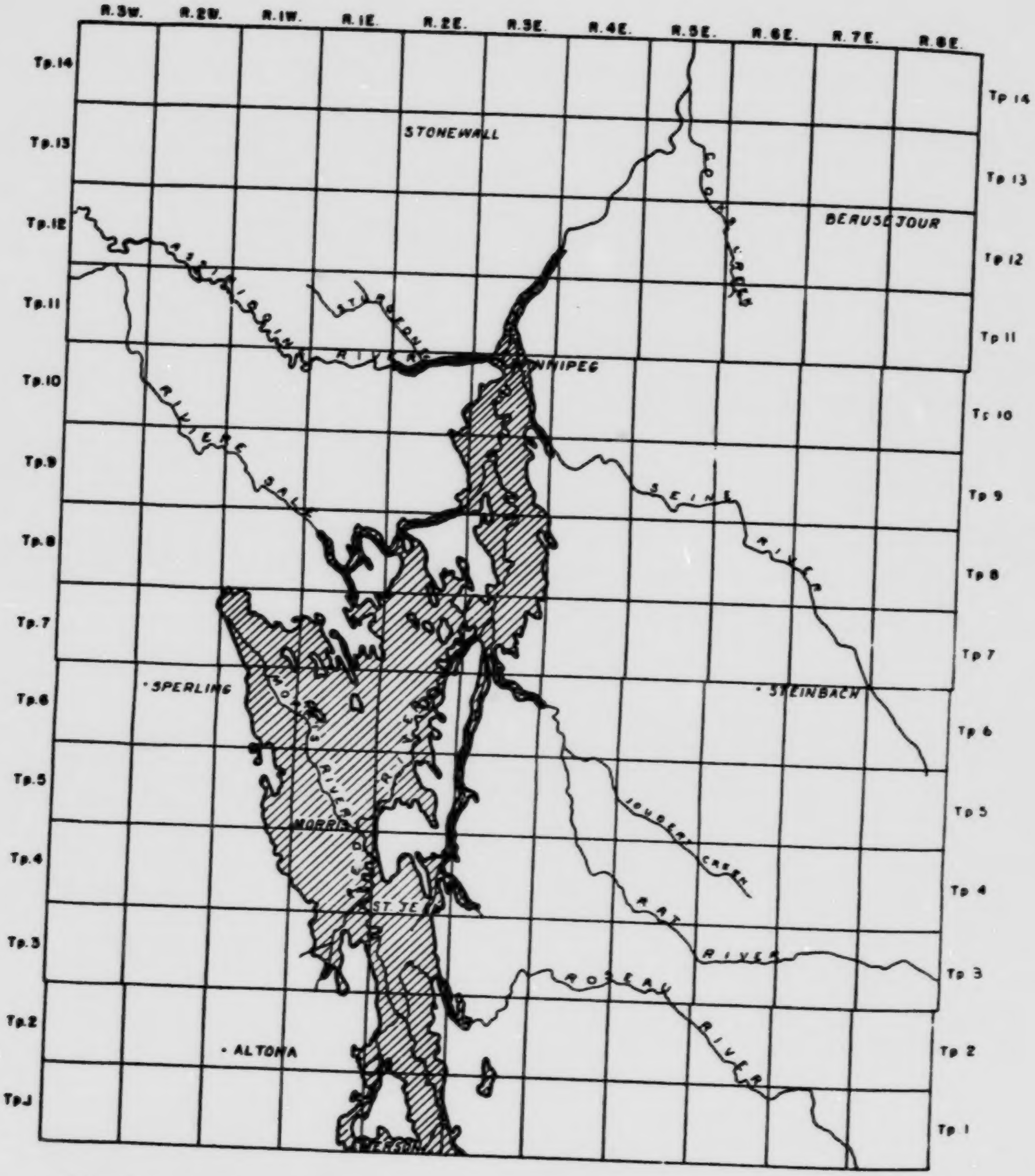
1025
1050

FIGURE 3 Relief and drainage map of the Winnipeg study area (Michalyna et al., 1975:8).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STONEWALL
BEAUSEJOUR
COOKS CREEK
ASSINIBOINE RIVER
STURGEON
WINNIPEG
RIVIERE SALE
SEINE RIVER
SPERLING
STEINBACH
MORRIS
RIVER
JOUBERT CREEK
RAT RIVER
ST. JEAN
ROSEAU RIVER
ALTONA
EMERSON

FIGURE 4 Area in the central lowland inundated by water in May, 1950 (Ehrlich et al., 1953:92b).

TABLE 1

Floods of Winnipeg
(From Labelle, et al., 1966)

Year	Maximum Elevation *		Probable Frequency of Return Years
	Feet	Meters	
1826	764.5	233.0	460
1852	762.5	232.4	150
1861	760.5	231.8	64
1882	753.6	229.7	18
1893	749.7	228.5	9
1897	750.0	228.6	10
1904	752.2	229.3	11
1916	751.6	229.1	13
1948	751.2	229.0	12
1950	758.5	231.2	36

* At junction of Assiniboine G.S. of Canada Datum. City of Winnipeg Datum 727.57 feet (221.76 m) G.S. of C. at junction, minimum flood level 18 feet above City of Winnipeg Datum or 746 feet (227.3 m) G.S. of Canada.

Climate

Climate is a significant factor in the distribution of plant and animal species and thus in the pattern of human settlement. The degree of variability and range of extremes are critical to the success of the various adaptive strategies employed. This will be reflected in the success of agricultural development and in seasonal movement of wildlife.

The climate of the region in general, and the Garden Site in particular, is continental in type. Its characteristics are reflected in large annual and diurnal temperature extremes. On an annual basis, the coldest period is during January (Fig. 5), with

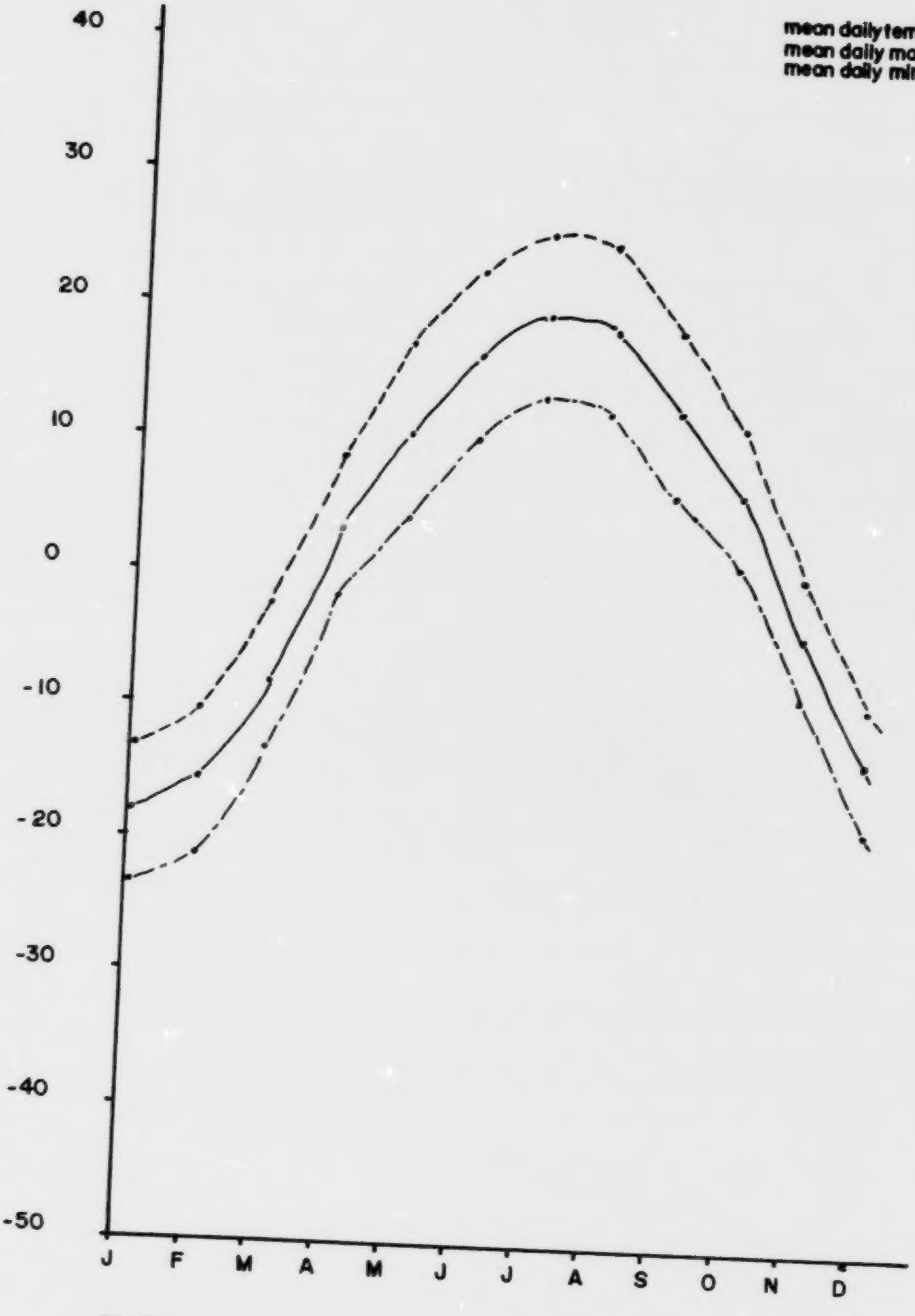


FIGURE 5 Temperature (degrees celsius)

Source: Canadian Normals: Temperature 1941-1971
Volume I - SI Environment Canada
Atmospheric Environment 1975

temperatures in the -19^{o} to -21^{o} C range (daily mean). The average number of frost-free days for the area is 118. The latest spring frost, on the average, occurs on May 25, and the earliest in autumn is September 21. The average period free from killing frosts (-1.4^{o} C or less) is 131 days. The warmest period in the year is July, with temperatures in the 20^{o} C range. See Fig. 5 for the annual mean temperature variation.

The dates of spring break-up and fall freeze-up are of considerable importance. The average date of break-up for the Red River is April 9 and for the Assiniboine, April 16. The freeze-up dates are November 16 and 19, respectively.

The prevailing winds at DkLg-16 are mostly westerlies. These winds are modified by the funneling effect of the Red River Valley upon air movement. During December, the winds shift direction and come from the northwest. Table 2 provides percentage frequencies of winds and their direction.

The success of the growing season depends upon a variety of factors: pre-season and growing season, as well as summer, precipitation. For the Winnipeg region, the average snowfall is 131.3 centimeters. See Fig. 6 for the mean precipitation of the Winnipeg region.

Most climatological trends are calculated on the basis of 10-year running means (Labelle, et al. 1966). The climatic picture of the Garden Site as part of the Winnipeg Region is based upon a 30-year period using instrumental readings. The majority of

TABLE 2

Frequency and Direction of Winds
Stevenson Airport: Winnipeg
1939 - 1960

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Calm	0.2	0.3	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2
N	15.4	16.4	18.7	21.7	21.7	14.2	11.1	12.1	12.1	11.3	12.7	13.5	15.01
NE	4.6	7.0	7.2	12.3	14.3	11.8	7.7	9.6	7.9	6.6	7.3	6.1	8.5
E	2.9	3.4	4.0	4.4	6.9	6.1	4.4	5.0	4.3	3.6	3.6	2.7	4.3
SE	7.3	7.4	9.9	10.3	12.1	12.4	10.4	14.8	11.3	10.2	8.4	7.7	10.2
S	24.0	22.4	21.5	18.1	14.5	15.5	22.4	21.9	22.3	26.5	22.5	27.2	21.6
SW	6.1	6.2	5.8	6.9	7.9	9.6	10.8	7.6	9.2	9.0	6.9	5.8	7.2
W	13.9	11.7	10.7	6.3	7.3	10.8	13.8	10.4	11.9	11.8	12.7	12.5	11.1
NW	25.1	25.4	21.9	19.9	14.6	16.5	19.4	18.2	20.9	21.0	25.9	24.5	21.1

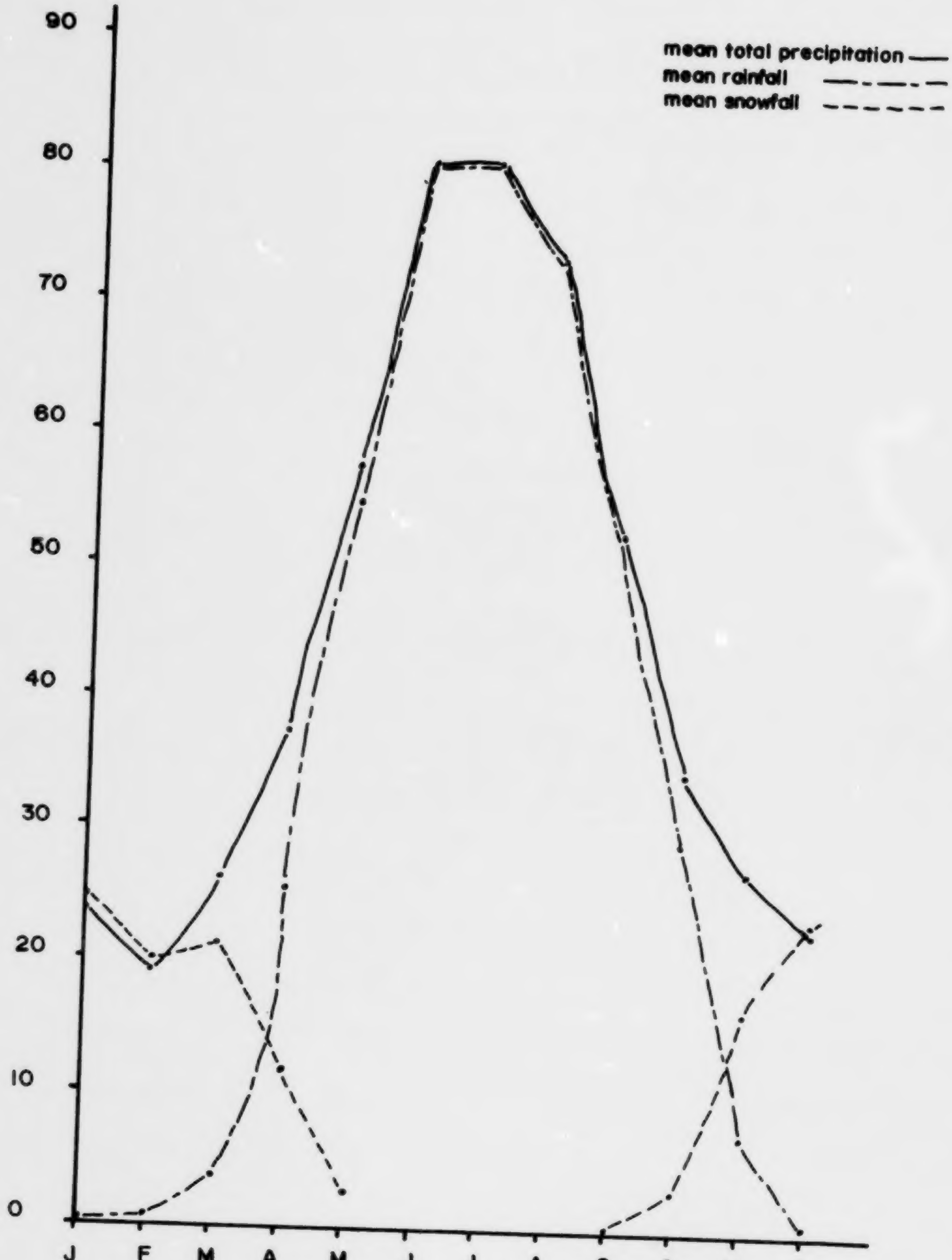


FIGURE 6 Precipitation (millimeters)

Source: Canadian Normals: Precipitation 1941—1971
Volume 2 — SI Environment Canada
Atmospheric Environment 1975

climatologists state that only these accurate readings can be used as the basis for any interpretation of climatic trends (Longley 1972). In the study of the climate of Winnipeg, Labelle et al. (1966) have utilized the continuous records that are available since the 1870s. While these records may not be as accurate, they can serve to extend the climatic record further back in time. In this way, it is possible to observe that present weather conditions are, in general, warmer, both in summer and winter, than was the case in the nineteenth century (Figs. 7, 8, 9, 10 and 11). This change is primarily a result of the warming trend from the 1850s to 1950, following the "Little Ice Age" (Bryson and Murray 1977).

When examining past climatic trends, it is important to bear in mind that the actual overall change in temperature does not have to be great to cause significant effects upon a human population (Bryson and Murray 1977). The growing season can be shortened by up to 40 days by only a mean annual drop in temperature of 2.4° C (World Meterological Organization 1966). In his examination of "agricultural weather" from 1800 to the present for the Red River Valley, Allsopp (1977) has used a variety of sources. With the aid of letters, journals and newspapers, as well as the measurements of precipitation and temperature from the 1870s onwards, he constructed a graph of dry, wet and normal agricultural weather (Fig. 12). From his graph, distinctive dry and wet periods are indicated. These climatic data can be used to understand the problems encountered by the nineteenth century agricultural settlement in the Red River Valley. It might be possible to test for some of these effects in the archaeological recovery of household sites along the Red and Assiniboine rivers.

Unfortunately, many of the documentary data used by Allsopp are subject to problems of interpretation. Most of this material exists as letters, newspapers and occasional diaries, and is of a discontinuous nature. The ideal sources would be long term records such as those kept by the European kingdoms. The journals kept by the Hudson's Bay Company come closest to these and have been used to determine spring break-up and fall freeze-up dates of rivers flowing into Hudson Bay (Moodie and Catchpole 1975).

Allsopp has attempted to overcome the limitations by calibrating the temperature and precipitation measurements for the 1870s with newspaper descriptions of the weather to verify descriptive accounts of the preceding years. Since the success of agriculture and other subsistence patterns determined to a large extent the success and failure of the Red River settlement, an understanding of past climatic trends can prove invaluable for an understanding of the area's development.

Soils and Vegetation

Soils

An additional tool for the interpretation of past events is the incorporation of site soil analysis (Cornwall 1958; Limbrey 1975). All instances of human activity disturb the soil to a certain degree. This can be differentiated from natural events of deposition or erosion

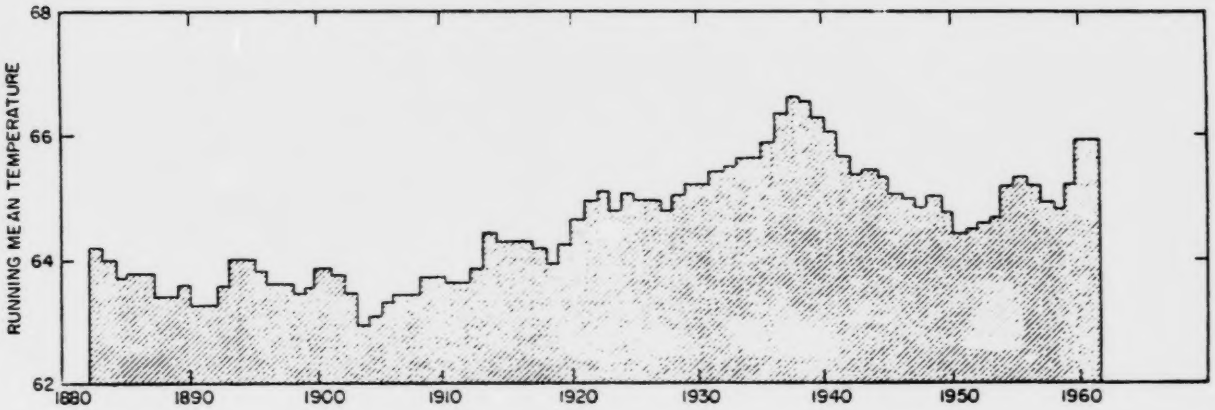


FIGURE 7 Ten year running mean of summer temperatures (Labelle _et_ _al_., 1966).

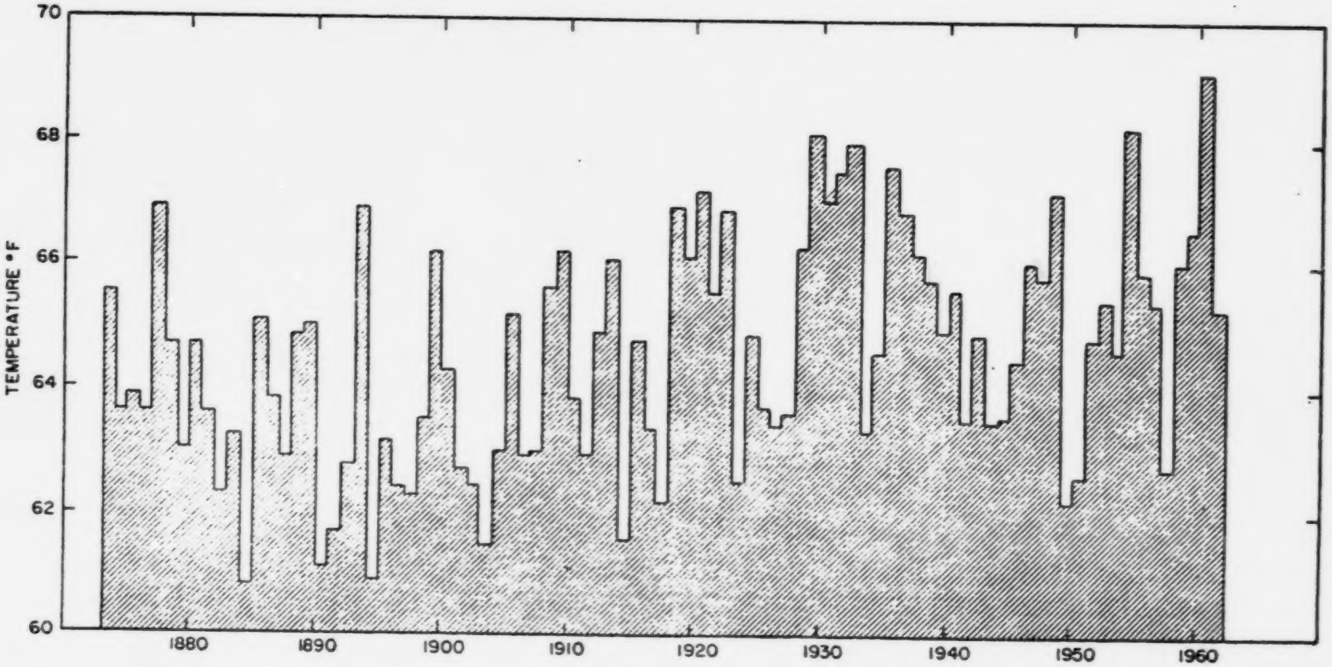


FIGURE 8 Mean summer temperatures (June, July and August) (Labelle *et al.*, 1966).

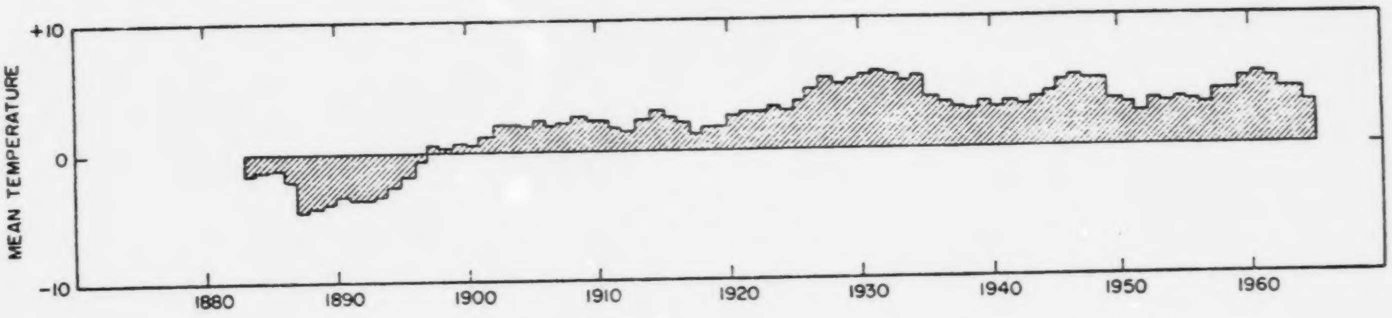


FIGURE 9 Ten year running mean of winter temperatures (Labelle *et al.*, 1966).

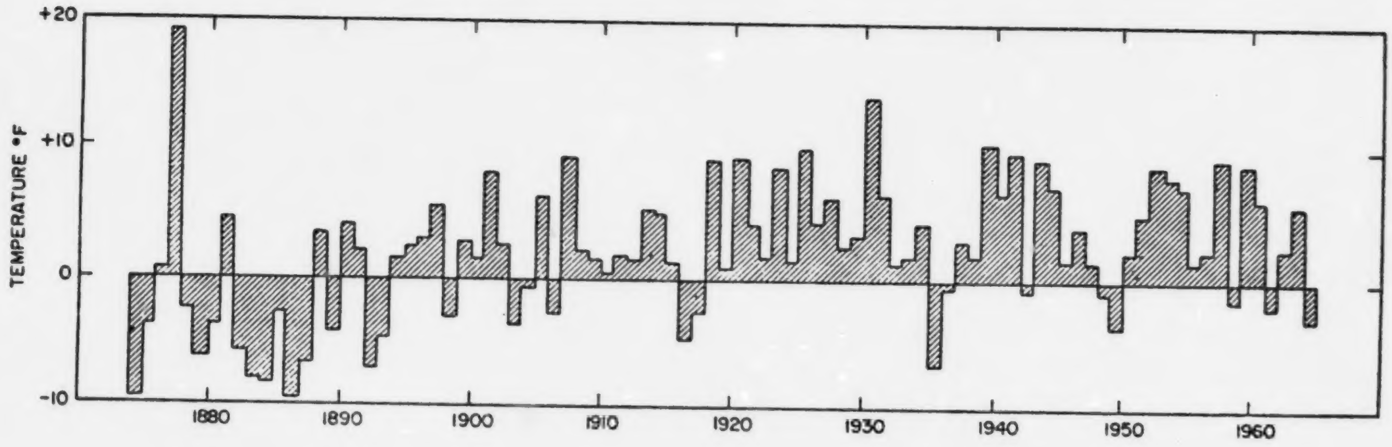


FIGURE 10 Mean winter temperatures (December, January and February) (Labelle *et al.*, 1966).

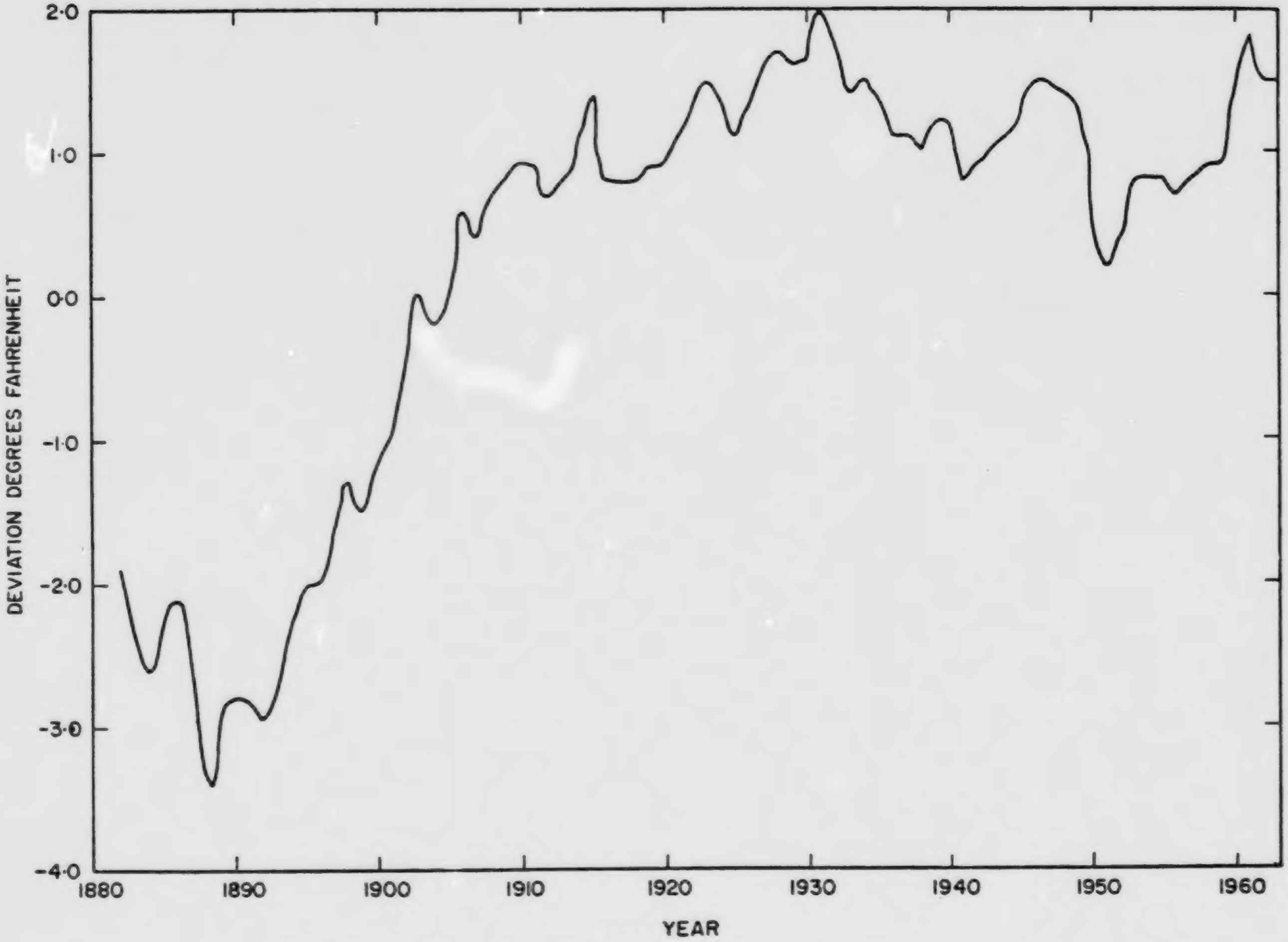


FIGURE 11 Deviation of the ten year mean temperatures from the ninety year mean (Labelle et al., 1966).

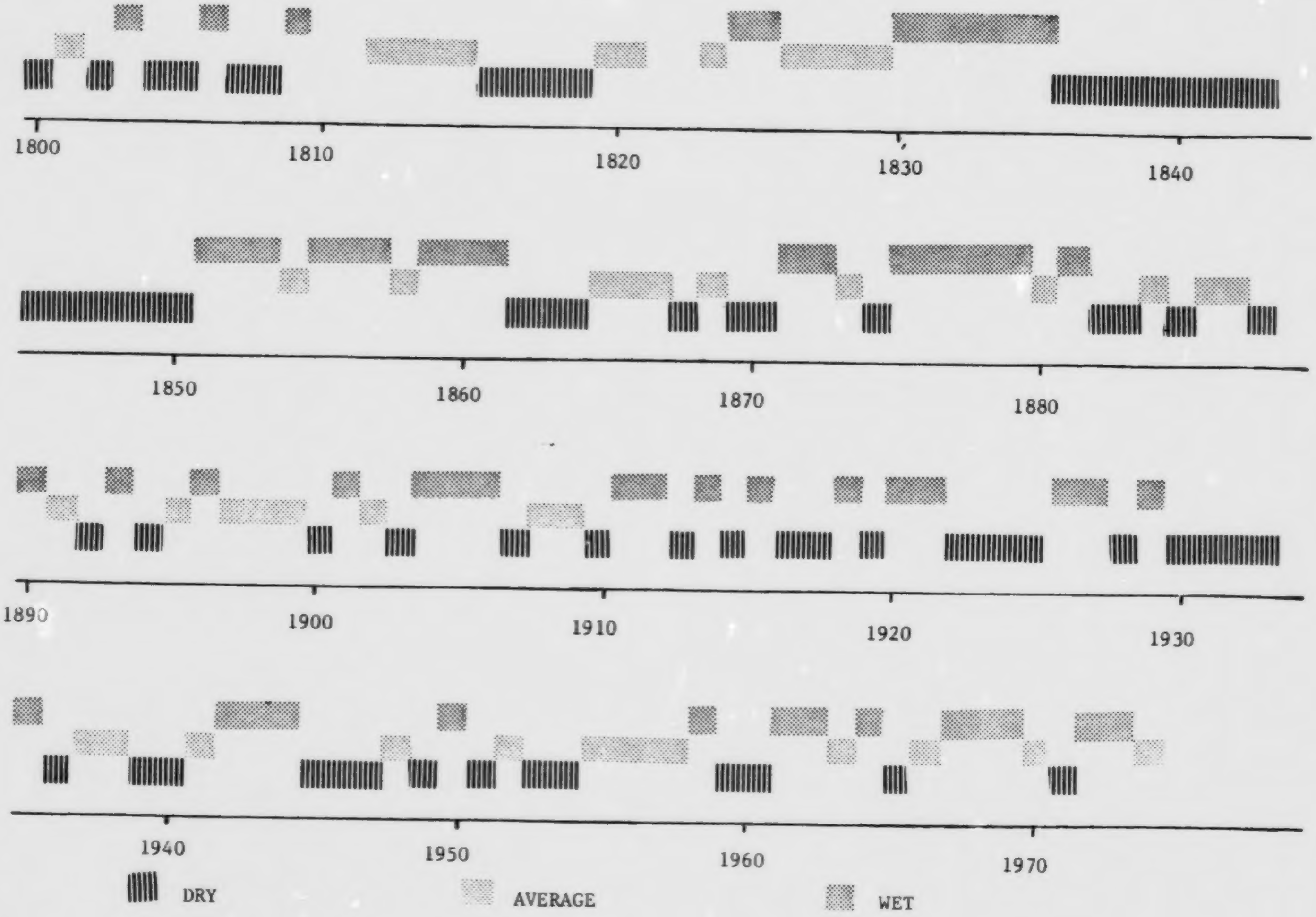


FIGURE 12 Southern Manitoba (Red River Basin) agricultural weather 1800-1975 (Allsopp 1977).

by such agents as wind and water. The natural development of soils can be used to identify past climates through the effects of past vegetative cover, e.g., grasslands as opposed to forests (either coniferous, deciduous or mixed). There is also the impact of soil disturbance subsequent to occupation of a site. For instance, this can happen through the activities of burrowing animals or the occurrence of agricultural development at a site.

Various factors can influence the movement of artifacts within the soil. This is dependant upon the type of soil material (i.e., sands versus clays), moisture content and general climatic variables. The characteristics of the artifact itself -- size, shape, material (i.e., thermal conductivity), etc. -- will also influence movement (Zoltai, S.L., in preparation). Horizontal and vertical movement of artifactual material is becoming an increasingly important consideration in the interpretation of the site's occupancy.

Excavations and testing took place in two areas of DkLg-16. These were (1) the terraces adjacent to the Sale River and (2) the level high ground approximately 20 to 30 meters from the river.

The soils of the terraces belong to the Regosolic Order of poorly developed soils and have previously been classified as belonging to a specific "Riverdale Soil Association" (Ehrlich, et al. 1953). The soil classification system of Canada has subsequently been modified, but a more current classification was not available at the time of writing.

The narrow river valley is subject to repeated flooding and deposition each spring. These deposits range in consistency from a fine silt to a light grey-brown to dark grey-brown clay that becomes darker at lower depths (Ehrlich, *et al.* 1953). There has been little development of distinct soil horizons because the soil-forming processes are repeatedly interrupted by annual alluviation. The vegetation is a mixture of hardwoods, shrubs and foils which produce an annual organic layer. This thin leaf matt, however, is repeatedly silted over and becomes relatively indistinguishable within a short period. The test pits that were opened adjacent to the river during July, 1979, showed some traces of the previous year's leaves but no pre-1978 litter could be discerned.

The main excavation units were on high ground, above the 755 foot (230 meter) contour line and away from the river (see Chapter 3, Fig. 33). These soils have been previously classed as the "St. Norbert Series" or Orthic Dark Grey Chernozems (Table 3). Of moderate to good drainage, they have developed on slightly calcareous, fine textured lacustrine and alluvial deposits of the central Lake Agassiz Basin (Michalyna, *et al.* 1975). Vegetation is tall grass prairie and riparian deciduous forest. The present vegetation is dominantly bur oak with maple, elm, aspen, herbs and grasses (Ehrlich, *et al.* 1953).

The recent changes in the Canadian soil classification do not seem to have altered the Orthic Dark Grey (O.D.G.) Chernozem classification or to have seriously altered profile designations. Physical and chemical analysis has been included (Table 4), since the conditions of various types of artifacts are influenced by chemical or electrochemical conditions

TABLE 3

Soil Profile - St. Norbert Clays
From Michalyna, et al. 1975:62

LH:	3 to 0 cm leaf mat and grass layer which is partly decomposed
Ahe:	0 to 8 cm grey (10 yr 5/1 d, 10 yr 2/1 m) clay; moderate, fine granular, very friable when moist, slightly hard when dry, very plastic; medium acid; clear, smooth boundary
AB:	8 to 10 cm grey (10 yr 5/1 d 10 yr 2/1 m) clay; moderate fine granular, friable when moist; slightly hard when dry; very plastic; slightly acid; clear smooth boundary
Btj:	10 to 25 cm dark grey clay (10 yr 4/d 10 yr 2/1 m) clay; moderate coarse prismatic; very firm when moist; hard when dry; very plastic; slightly acid; gradual wavy boundary
Bm:	25 to 45 cm very dark grey (10 yr 3/1 d 10 yr 2/1 m) clay; weak fine subangular blocky; firm when moist, hard when dry, very plastic; neutral; diffuse, wavy boundary
BCk:	45 to 60 cm olive grey clay (5 y 5/2 d 10 yr 3/2 m) clay; massive to weak coarse granular; firm when moist, hard when dry, very plastic; mildly alkaline, weakly calcareous; irregular, wavy boundary
Ckgl:	60 to 90 cm olive grey clay (5y5/2d 3.5y7/2 m) clay; firm when moist, hard when dry, very plastic, mildly alkaline, weakly calcareous; few, medium, prominent grey (5y 7/2m) lime mottles
Ckg2:	90 to 180 cm olive grey to light olive grey (5y5/2 to 6/2 d) clay; massive, firm when moist; hard when dry, very plastic; mildly alkaline; moderately calcareous

in the soil. Figure 13 shows the correspondence between dominant vegetation type and soil climate type for the Winnipeg Region.

TABLE 4

ANAYLSIS OF SAINT NORBERT CLAY

Horizon	Depth cm	Mechanical Analysis			Moisture 1/3 Atm. %	pH	Cond. mmhos/ cm³	$CaCO_3$ Equiv. %	Org. C %	Total N %	C.E.C. m.e./ 100 gm.	Exchangeable Cations m.e./100 gm.				
		S %	Si %	C %								Ca	Mg	K	Na	H
Ahe	0- 8	6	46	48	38	6.0	-	0	3.9	0.24	37.5	17.9	12.7	0.6	0.2	4.5
Btj	8-25	7	22	71	41	6.4	-	0	1.4	0.12	43.0	16.7	20.1	1.0	0.5	2.2
Bm	25-45	4	20	76	52	6.6	-	0	1.2	0.10	49.1	15.8	30.1	0.9	0.7	2.0
BCk	45-60	6	17	77	49	7.7	0.4	2.5	0.4	0.06	-	-	-	-	-	-
Ckg1	60-90	3	16	81	48	7.6	1.6	4.7	0.3	0.06	44.5	25.6	27.1	1.0	1.4	-
Ckg2	90-120	3	8	89	50	8.5	1.1	14.9	0.2	0.05	-	-	-	-	-	-
Ckg	120-180	7	19	74	43	8.4	1.1	20.5	0.1	0.03	29.4	19.1	26.1	0.3	0.5	-

SOURCE: Michalyna _et al_. 1975:230.

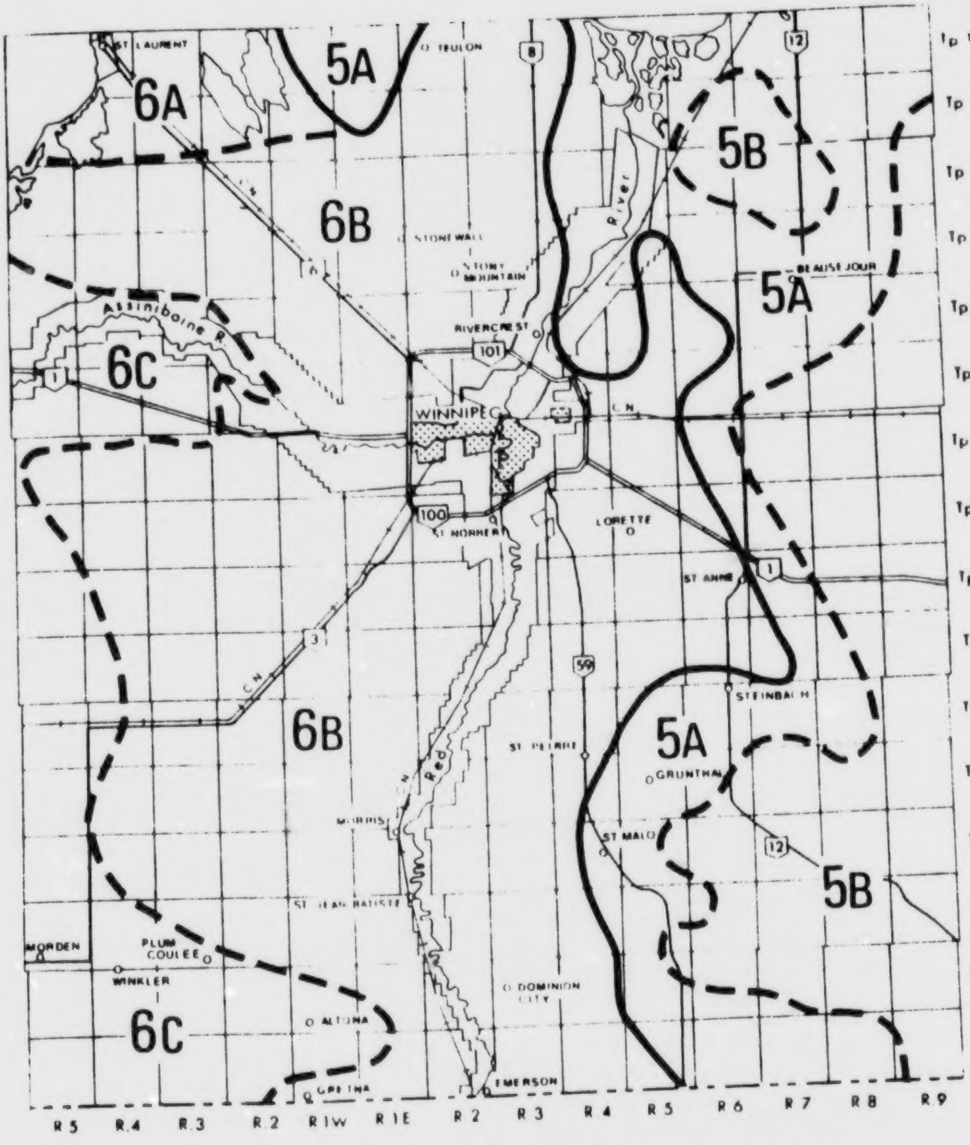

ST LAURENT
6A
5A
TEULON
8
12
5B
6B
STONEWALL
STONY MOUNTAIN
BEAUSEJOUR
5A
River
Assiniboine R.
RIVERCREST
101
6C
1
WINNIPEG
C.N.
100
ST NORBERT
LORETTE
ST ANNE
1
3
C.N.
59
STEINBACH
6B
Red
ST PIERRE
5A
GRUNTHAL
MORRIS
ST MALO
12
5B
ST JEAN BATISTE
MORDEN
PLUM COULEE
WINKLER
DOMINION CITY
6C
ALTONA
GRETNA
EMERSON
R 5
R 4
R 3
R 2
R 1W
R 1E
R 2
R 3
R 4
R 5
R 6
R 7
R 8
R 9
Tp 16
Tp 15
Tp 14
Tp 13
Tp 12
Tp 11
Tp 10
Tp 9
Tp 8
Tp 7
Tp 6
Tp 5
Tp 4
Tp 3
Tp 2
Tp 1

FIGURE 13 Soil climate map. The greater Winnipeg region has three general vegetation types:

(a) grasslands west of the Red River coinciding with soil climate area 6C;
(b) aspen-oak in the broad belt stretching north along the Red River usually corresponding to the 6B climate zone;
(c) the forest region of the Manitoba lowlands of the 5A and 5B climate zone (Michalyna et al., 1975:11).

Vegetation

The vegetation cover of any particular site or area is determined to a large extent by climate, soils and topography as well as by animal activities, i.e., bison (Arthur 1975), and by subsequent human modification (Bird 1961). The Garden Site has three vegetation types: (1) the river valley complex of the Sale River; (2) the grasslands; and (3) the aspen-oak parkland. Alexander Henry describes the vegetation of the St. Norbert area as follows:

> ... [the Sale River] empties into the Red river, forming the N. boundary of the great meadows of this River. The country which lies between the Sale and Assiniboine is low and forms in many places marshy meadows, thickly intersected with poplars and willows which never grow to any height. Moose and red deer are very numerous at all seasons, and in the winter buffalo resort here, for shelter from storms and cold (Coues 1965:56).

Fifty years later, Henry Y. Hind witnessed a very similar setting.

> The county lying between it [the Sale] and the Assiniboine is very marshy, and is covered with willows and clumps of small aspen. In the valley of La Riviere Sale, and along both sides, grow oak and elm and some fine ash, many of the trees being two feet in diameter; this narrow forest extends the whole way up the river on the north bank. On the south side there is prairie apparently as level and boundless as the ocean; the grass on it is most beautiful and luxuriant, indicating the richness of soil (Hind 1971:I: 155).

These descriptions bear little resemblance, however, to the present. As already mentioned, low-lying areas have been drained with ditches, and urban and agricultural development has removed most of the original vegetation.

Of the three vegetation types, the least disturbed has been that of the river valley community. Here is found a number of hardwood species such as oak and ash, as well as chokecherry and hazel. This area not only provides food and building resources but also attracts a variety of bird and mammal species for shelter in winter (Ross 1972; Bossenmaier and Vogel 1974). The wide resource potential of this environment would have attracted seasonal and permanent human occupants as well (Morton 1967), depending upon available technology and economic orientation.

The second vegetation type is classified as grasslands (Watts 1969). This area can be subdivided on the basis of wetness (Bossenmaier and Vogel 1974). As previously discussed, the area of the site (and of the Winnipeg region as a whole) is flat and subject to both permanent and temporary marsh development. Big blue stem and little blue stem are the dominant plant species on the drier portions. In areas of permanent and semi-permanent marsh, species of sedges and rushes are dominant (Bird 1961).

The other aspect of the grasslands is described by Bird (1961) and Watts (1969) as true prairie. It extends into Manitoba from the south as far north as Winnipeg, as a broad wedge with the Red River forming its eastern boundary. The dominant grasses here are of the Stipa sporobulus association (Scoggan 1957).

The third vegetation type is the aspen-oak parkland. It forms a belt between the Red River and the eastern coniferous forest and arches west around the junction of the Red and Assiniboine Rivers. Occasionally this vegetation type crossed the Red River (Watts 1969). Prior to European settlement, this zone provided a variety of habitats. According to Bossenmaier and Vogel (1974), it was not a major component of the area under study but it was within easy access. Table 5 presents the tree and plant species that were utilized by the nineteenth century settlers.

TABLE 5

Flora Utilized by Red River Settlement
From Ross 1972

Species	Utilization
Oak	Frame of building, wheel rims, shingles
Pine	Floor boards
Whitewood (Basswood)	Furniture
Poplar	Fencing (peeled)
Maple	Axels (Red River carts)
Elm	Hubs (Red River carts)
Cedar	Shingles
Cherries	Food
Strawberries	Food
Gooseberries	Food
Bearberries	Food
Hawthorn berries	Food
Poires-pearberry	Food
Wild plum	Food

Table 6 is intended to give an idea of the dominant plant species of each of the biomes available to the site's occupants. Vegetation cover corresponds to soil types and, in addition, reflects the type of animal species which will occupy a particular biome.

Faunal Resources

Resources Available in the Natural Environment

Three basic environments are immediately accessible to occupants of the site in terms of food resources. These are (1) the river valley, (2) the grasslands, and (3) the aspen-oak parkland -- all within easy reach of DkLg-16. As already discussed in terms of vegetation, these three provide distinct as well as overlapping habitats. Tables 7 through 10 indicate that a varied and abundant food resource base was available. These tables are a compilation of information from Bossenmaier and Vogel (1974) and Bird (1961).

The grasslands were inhabited by a range of ungulates and smaller herbivores and their predators. The dominant herbivore was the bison. Its importance to the indigenous population has been discussed by Arthur (1975) and Ray (1974), and to the early settlers by Ross (1972) and Morton (1967). The major predators of the bison (besides man) were the grizzly bear and wolf. Smaller predators were the coyote, badger, skunk, and fox, whose prey were mice, voles, and rabbits. A variety of species utilized both grasslands and parkland habitats and were often found in the river valleys as well. Other species, such as the muskrat and beaver, were exclusively swamp and river dwellers.

A variety of birds, primarily waterfowl, was available for food. Some of these species migrated through the area in spring and fall but many actually nested on the Sale and in the Winnipeg Region generally.

TABLE 6

Selection of Vegetation Species of the Winnipeg Region, Typical of Each of the Environments

PLANTS		ENVIRONMENTS			
Name	Taxonomic Name	Grassland	Wet Prairie Grassland	Aspen Oak Parkland	River Valley
Aspen	*Populus tremuloides*			x	x
Balsam poplar	*Populus balsamifera*			x	x
Basswood	*Tilia americana*				x
Bur oak	*Quercus macrocarpa*			x	x
Green ash	*Fraxinus pennsylvanica*				x
Manitoba maple	*Acer negundo*				x
Plains cottonwood	*Populus deltoides*				x
White birch	*Betula papyrifera*				x
White elm	*Ulmus americana*				x
Willow	*Salix interior*				x
	Salix amygdaloides				x
Speckled Alder	*Alnus rugosa*		x		
Baltic Rush	*Juncus balticus*		x		
Big bluestem	*Andropogon gerardi*	x			
Blue joint	*Agropyron*	x			
Bullrushes	*Scirpus* sp.		x		
Canadian wildrye	*Elymus canadensis*	x			
Cattails	*Typha latifolia*		x		
Reedgrasses	*Calamagrostis* sp.		x		
June grass	*Koeleria cristata*	x			
Little blue stem	*Andropogon scoparius*	x			
Manna grass	*Glyceria* sp.		x		
Needle grass	*Stipa spartea*	x			
MARSH					
Pondweeds	*Potamogeton* sp.		x		
Reed grasses	*Calamagrostis* sp.		x		
Rushes	*Juncus* sp.		x		
Sedges	*Carex* sp.		x		
Slough grass	*Spartina pectinata*		x		
Switchgrass	*Panicum virgatum*		x		
Tallcord grass	*Spartina gracilis*		x		
White top	*Scolochloa festucacea*		x		
TRUE PRAIRIE					
Porcupine grass grass	*Stipa spartea*	x			
Prairie drop seed	*Sporobolus heterolepis*	x			
Beard grass	*Andropogon gerardi*	x			
Indian grass	*Sorghastrum nutans*	x			
Switchgrass	*Panicum virgatum*	x			
FORBS					
Willow aster	*Aster praealtus*	x			
Canada anemone	*Anemone canadensis*	x			
Tall goldenrod	*Solidago canadensis*				
Western red lily	*Lilium philadelphicum*	x			
Wild prairie rose	*Rosa arkansana*	x			
Highbush cranberry	*Viburnum trilobum*			x	
Hazelnut	*Corylus cornuta*			x	x
Saskatoon berry	*Amelanchier alnifolia*			x	x
Chokecherry	*Prunus virginiana*			x	x
Snowberry	*Symphoricarpos albus*			x	
Wild Plum	*Prunus americana*			x	
Pincherry	*Prunus pennsylvanica*				x
Hawthorns	*Crataegus chrysocarpa*				x
Canada Plum	*Prunus nigra* Ait.				x

TABLE 7

Mammal Species of the Winnipeg Regions
Typical of each of the Ecotones
From Sossenmaier and Vogel 1974, Bird 1961, Collins 1959

MAMMALS		ECOTONES			
Name	Taxonomic name	Grass-land	Wet Prairie Grassland	Aspen Oak Parkland	River Valley
Badger	*Taxidea taxus*	x			
Beaver	*Castor canadensis*			x	x
Bison	*Bison bison*	x		x	x
Black bear	*Ursus americanus*			x	x
Bobcat	*Lynx rufus*	x		x	x
Coyote	*Canis latrans*	x		x	x
Chipmunk	*Eutamias minimus*				
Eastern Cottontail	*Sylvilagus floridanus*	x		x	
Franklin's Ground Squirrel	*Citellus franklinii*			x	
Grey fox	*Urocyon cinereoargenteus*			x	
Grey wolf	*Canis lupus*			x	x
Buffalo wolf	*Canis lupis nubilus*	x			
Grizzly bear	*Ursus horribilis*			x	x
House mouse	*Mus musculus*				
Least weasel	*Mustela rixosa*	x			
Long tailed weasel	*Mustela frenata*	x			
Lynx	*Lynx canadensis*			x	x
Mink	*Mustela vison*				x
Moose	*Alces alces*			x	x
Mule deer	*Odocoileus hemionus*			x	x
Muskrat	*Ondatra zibethicus*		x		x
Norway rat	*Rattus norvegicus*				
Plains pocket gopher	*Geomys bursarius*	x			
Meadow vole	*Microtus pennsylvanicus*	x			
Prairie vole	*Microtus ochrogaster*	x			
Pronghorn	*Antilocarpa americana*	x			
Raccoon	*Procyon lotor*				x
Red fox	*Vulpes fulva*	x			
Red backed mouse	*Perognathus fasciatus*			x	
Red squirrel	*Tamiasciurus hudsonicus*	x		x	x
River otter	*Lutra canadensis*				x
Short tailed weasel	*Mustela erminea*	x			
Snowshoe hare	*Lepus americanus*			x	
Striped skunk	*Mephitis mephitis*			x	
Wapiti (elk)	*Cervus canadensis*	x		x	x
Western jumping mouse	*Zapus princeps*	x			
White tailed deer	*Odocoileus virginianus*			x	x
Thirteen striped ground squirrel	*Citellus tridecemlineatus*	x			
Richardson's ground squirrel	*Citellus richardsonii*	x			
White tailed jack rabbit	*Lepus townsendii*	x			

TABLE 8

Bird Species of the Winnipeg Region, with Emphasis Upon Waterfowl, in Terms of Susbsistence (Not a Complete List of All Species). From Bossenmaier and Vogel, 1974

BIRDS					
Common Name	Taxonomic Name	Grassland	Oak Prairie Grassland	Aspen Oak Parkland	River Valley
Black Crowned Night Heron	*Nycticorax nycticorax*	x	x		
Great Blue Heron	*Ardea herodias*	x	x		
Canada Goose	*Branta canadensis*	x	x		
Giant Canada Goose	*Branta canadensis maxima*	x	x		
Snow Goose	*Chen hyperborea*	m	m		
Trumpeter Swan	*Olor buccinator*	x	x		
Mallard	*Anas platyrhynchos*	x	x		x
Black duck	*Anas rubripes*	x	x		x
Pintail	*Anas acuta*	x			x
Gadwall	*Anas strepera*	x	x		x
American Widgeon	*Mareca americana*	x	x		x
Shoveler	*Spatula clypeata*	x	x		x
Green Winged Teal	*Anas carolinensis*	x	x		x
Blue Winged Teal	*Anas discors*	x	x		x
Red Head	*Aythya americana*	x	x		
Canvas back	*Aythya valisineria*	x	x		
Greater Scaup	*Aythya marila*	x	x		
Lesser Scaup	*Aythya affinis*	x	x		
Ringnecked Duck	*Aythya collaris*	x	x		x
Bufflehead	*Bucephala albeola*				x
Ruddy Duck	*Oxyura jamaicensis*	x	x		
Common Merganser	*Mergus merganser*				x
Western Grebe	*Aechmophorus occidentalis*	x	x		
Horned Grebe	*Podiceps auritus*	x	x		
Eared Grebe	*Podiceps caspicus*	x	x		
Pie Billed Grebe	*Podilymbus podiceps*	x	x		
Whooping Crane	*Grus americana*	x	x		
Sandhill Crane	*Grus canadensis*	x	x		
American Coot	*Fulica americana*	x	x		
Common Raven	*Corvus corax*	x	x	x	
Common Crow	*Corvus brachyrhynchos*	x	x	x	
Starling	*Sturnus vulgaris*	x	x		
Yellow Headed Blackbird	*Xanthocephalus xanthocephalus*	x	x		
Redwinged Blackbird	*Agelaius phoeniceus*	x	x		
Robin	*Turdus migratorius*	x	x		
Passenger Pigeon	*Ectopistes migratorius*			x	
Greater Prairie Chicken	*Tympanuchus cupido*	x			
Ruffed Grouse	*Bonasa umbellus*			x	x
Sharptailed Grouse	*Pedioecetes phasianellus*			x	x
Wilson's Phalarope	*Steganopus tricolor*	x	x		
Common Snipe	*Capella gallinago*		x		x

m = Migratory Season

TABLE 9

Fish Found in the Red River in the Nineteeth Century
From Bird, 1961 and G. Nelson, pers. comm.

Common Name	Taxonomic Name
Black bullhead	*Ictalurus melas*
Brown bullhead	*Ictalurus nebulosus*
Bigmouth buffa	*Ictiobus cyprinellus*
Burbot	*Lota lota*
Flathead chub	*Platygobio gracilis*
Freshwater drum	*Aplodinotus grunniens*
Goldeye	*Hiodon alosoides*
Mooneye	*Hiodon tergisus*
Perch	Percidae
Pike	Esocidae
Quillback sucker	*Carpiodes cyrpinus*
Rock bass	*Ambloplites rupestris*
Sauger	*Stizostedion canadense*
Silver redhorse	*Moxostoma anisurum*
Stonecat	*Noturus flavus*
Sturgeon	*Ancipenser fulvescens*
Whitefish	*Coregonus clupeaformis*
White sucker	*Catostomus commersoni*
Tulibee	*Coregonus Artedi*

TABLE 10

Mollusca in Red River near Winnipeg
From Bird 1961:24

Taxonomic Name
Lasmigona complanata katherinae
Lampsilis siliquoidea rosacea
L. ventricosa
Ligumia recta latissima
Proptera alata megaptera
Anodonta grandis footiana
Strophitus rugosus
Amblema costata

The rivers and streams also provided a variety of fish species such as sturgeon, sucker, walleye and pike. In addition there were crayfish and several species of shellfish.

Resources Available from Agriculture

Settlement and the expansion of agriculture throughout the nineteenth century resulted in the introduction of a variety of new plant and animal species (Table 11). The needs of farming and transportation increased the horse and cattle populations in the settlement. In addition, sheep and swine were brought into the colony. The decreasing bison population, resulting from over hunting by H.B.C. procurers (see Fig. 14 for an idea of the decreasing range of the bison herds), increased the demand for domesticated meat sources as well as for cereals and other garden produce. The last organized bison hunt from Red River took place in 1868 (Morton 1967).

TABLE 11

List of Domesticates
From Manitoba Census, 1849 and
Nor'Wester, 1866, November 17, 1868, April 15, 1869, November 23.

Common Name	Taxonomic Name
Mammals	
Horse	*Equus* sp.
Cattle	*Bos* sp.
Sheep	*Ovis* sp.
Swine	*Sus scrofa*
Plants	
Wheat	*Triticum* sp.
Barley	*Hordeum* sp.
Oats	*Avena* sp.
Potatoes	*Solanum tuberosum*
Turnips	*Brassica napobrassica*
Carrots	*Daucus carota*
Onions	*Allium cepa*

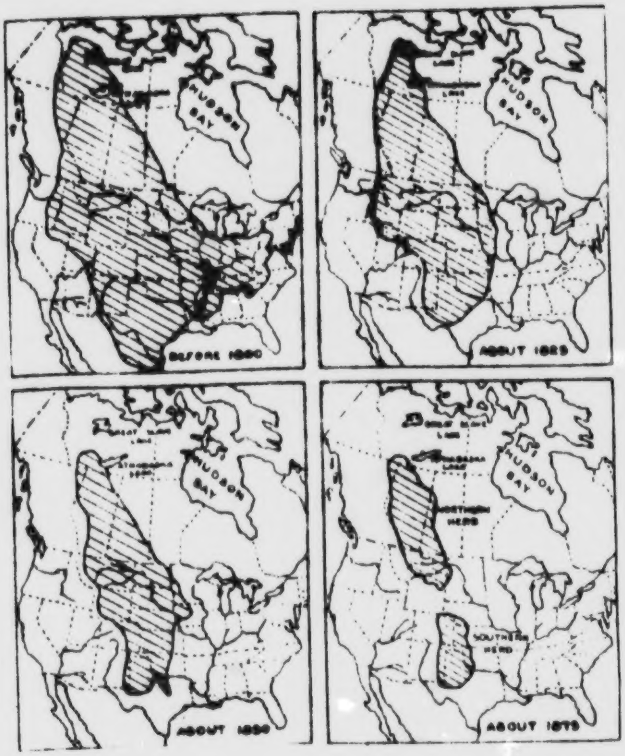

HUDSON BAY
BEFORE 1800
ABOUT 1825
GREAT SLAVE LAKE
ATHABASKA LAKE
ABOUT 1850
NORTHERN HERD
SOUTHERN HERD
ABOUT 1875

FIGURE 14 The diminishing range of the bison. Simplified from a map in Allen (1876).

The increasing expansion of the human population on the prairies had an adverse effect upon the wildlife of the region. Bird (1961) has extensively illustrated the reduction in the ranges of a variety of species. The river valleys and open grasslands and parklands at one time provided a favourable habitat for a considerable variety of mammals and gamebirds (Table 7, 8). The reduction in many of the mammals can be seen by comparing Table 11 (fur returns for Provencher district) with the precontact abundance illustrated in Table 7 (although commercial demand and personal economics might reflect some bias).

TABLE 12

Returns for Furs and Pelts: Provencher District 1886
From 1886 Manitoba Census

Animal	Number
Beaver	0
Bear	2
Fisher	0
Fox	0
Lynx	0
Marten	0
Mink	47
Muskrat	128
Otter	5
Skunk	22
Wildcats	0
Wolf	4
Wolverine	0
Caribou	0
Deer	0
Moose	0
Otter	1

From the above returns, it would appear that the range of species in the Winnipeg Region has changed due to settlement, with most of the above having moved to the north and northeast (Bossenmaier and Vogel 1974). Tables 7 through 10 show what faunal resources were available in the way of mammal, bird (principally waterfowl), fish (found in Red River) and molluscs. This information can then be used as a basis for comparison with the recovered material, and may perhaps reflect social and economic preferences and/or necessities.

CHAPTER II

ETHNOHISTORY

Introduction

The research into the cultural and historical data relating to an archaeological site or area is referred to as "ethnohistory" or "historic ethnography", the terms being essentially interchangeable. This type of study is more fully defined as "the reconstruction of a synchronic, ethnographic description based on written documents contemporary with this stage" (Sturtevant 1966:7). Historic archaeological sites offer the opportunity for documentary research which can be of use in the interpretation of the site. Conversely, the archaeological material can elaborate upon and correct often sketchy or biased historical material.

Documentation has been sought to place DkLg-16 within a historical context. European incursions into the Red River valley did not begin until the eighteenth century and settlement did not begin until the beginning of the nineteenth century. Documentary research has therefore concentrated on the nineteenth century which saw the transition from the fur trade economy to the establishment of an agricultural settlement. A variety of sources was investigated, including Land Titles files, Crown Lands files, nineteenth century maps and survey notebooks, historical and literary accounts, old newspapers and old photographs. The purpose of this research has been to reconstruct the general patterns of social and economic activity of this period, as well as to place the site into the broader economic network of its immediate community and that of the Red River Settlement as a whole.

This section will examine the historical setting, socio-economic orientation of the area and types of shelter, clothing and transportation. Succeeding this section is an examination of how the site was located, its ownership and occupation, and the inhabitants' socio-economic orientation and personal history.

Located within the Parish of St. Norbert, the area was a predominantly Metis Catholic community in the nineteenth century (Morton 1967). The purpose of the ethnohistorical research was (1) to test the hypothesis that the site's occupants were indeed Metis, and (2) to obtain information which could be related to the artifactual recovery, such as type of housing and the construction techniques, subsistence, clothing, and transportation. The uses of these kinds of data have been already demonstrated by South (1977a, 1977b) and Brown (1973).

Historical Setting

The Red River Settlement

The Garden Site is located on the Sale River, a tributary of the Red River, in the vicinity of a ford or river crossing around which a small community developed. This was part of a much larger community of the nineteenth century, referred to as the Red River Settlement, which developed at the confluence of the Red and Assiniboine Rivers. The first mention of any settlement near the

Riviere Sale was that of Jean Baptiste Charette, a carpenter in the employ of the North West Company. He constructed a square log house north of the Sale River crossing at the beginning of the nineteenth century, possibly as early as 1811-12 (Shipley 1969). There is no specific mention of any other settlers until the 1820s, although Metis settlement in the Red River Valley had taken place even before the establishment of Lord Selkirk's agricultural colony in 1811 (Morton 1967).

In 1821, the Hudson's Bay Company and the North West Company amalgamated after severe competition (Campbell 1957). This decision created a surplus of manpower and, as a result, the new Hudson's Bay Company discharged a large number of men (Morton 1967; Pritchett 1942). Most were encouraged to settle along the Red River with offers of land. The size of the land grant was dependent upon the individual's position and length of service within the Company (Foster 1973).

A second influx of people to the fledgling colony came about as a result of the delineation of the international boundary between British North America and the United States of America 1818-1819. The boundary location placed Pembina, a settlement predominantly of Metis and formerly part of Selkirk's territory of Assiniboia, within American territory. The Metis had originally settled here, as it placed them within easy reach of the bison herds upon which they were dependent for subsistence and trade. The Hudson's Bay Company, not wishing to lose Metis input into their economy and that of the settlement, persuaded the majority of them to move down the Red River in 1823 (Morton 1967). In this venture, the Hudson's Bay Company had the assistance of the Roman Catholic missionaries from St. Boniface who had motives besides the strictly economic. As a result, most of the 500 Metis living at Pembina moved north, primarily settling along the Assiniboine River, forming the Parish of St. Francois Xavier (Morton 1967) and on the Red River along which the old trail to Pembina passed. This increase in population, both from the surplus Hudson's Bay Company employees and the Metis from Pembina, rapidly increased the size of the Red River Settlement and expanded the cultural mix as well. In addition, areas of settlement along the Red and Assiniboine rivers came to be differentiated on the basis of socio-economic background. The Selkirk settlers (the original core settlers of the colony), retired Hudson's Bay Company employees, and the English-speaking, "country-born" half breeds, all predominantly Protestant, settled on the Red River north of the junction of the Assiniboine and Red Rivers (Foster 1973). The French (European) settlers took up land around St. Boniface Cathedral, and the French-speaking 'Metis' half breeds established themselves south and west of "The Forks" of the Assiniboine and Red Rivers. This second block of the population was predominantly Catholic.

Although the Company's initial strategy was to establish an agricultural settlement to act as a local supply for the fur trade, the Settlement and the Company relied heavily upon the hunting capabilities of the Metis and upon their development of the biannual bison hunt (Sprenger 1972). This would all change within a generation with the re-orientation of the Company's policies, placing restrictions upon the abilities and productive potentials of the Settlement (Morton 1967; Foster 1973).

The Community of St. Norbert

While a large percentage of the families in St. Norbert were probably seasonal migrants, they would have possessed permanent house structures (Havard 1880; Tremauden 1935). By the 1840s and '50s, a population of considerable size had developed along the west bank of the Red. This is demonstrated by the resolution of the Council of the Colony in 1853 for road construction from the Assiniboine River to Point Coupé (St. Adolphe) passing through St. Norbert. Some of the men responsible for construction were from the St. Norbert area and are listed on McPhillips' survey of St. Norbert in 1874: M. Bruneau, Maxine Genton, Jean Baptiste Lepine, Solomon Hamelin, Michael Duman, Narcisse Marion, and Joseph Charette (Shipley 1969:14).

In 1857, the community received a permanent priest and achieved parish status. A church and school were built, and two Grey Nuns arrived in December 1858 to teach the girls. At this time there were 101 families (Dawson 1968).

A number of enterprises also developed in the community. In 1866, Raphael Belleville opened a tannery on the Sale River (Nor'Wester 1866, June 30). In 1870, Joseph Le May constructed a sawmill with a grist mill and lathing machines and a blacksmith's shop (Nor'Wester 1870 Nov. 26). By 1870, St. Norbert was the second largest parish in the Red River Settlement, with 1080 people (Manitoba Census 1871), second only to St. Francois Xavier. Population size would also have played a large part in establishing electoral boundaries for 1870. St. Norbert was divided into two districts; North and South St. Norbert.

The population of the parish seems to have peaked in the 1870s, because by the next census of Manitoba in 1886, only 680 people were enumerated. This was possibly due to the difficulties in securing satisfactory land entitlements under the Manitoba Act. Many people became disillusioned and left the Red River Settlement and moved to Saskatchewan (Morton 1967; Payment 1979).

Socio-Economic Orientation

The French Metis have been characterized primarily as seasonal migrants, generally showing little initiative outside of the organization of the bison hunt. However, many became successful farmers and/or traders (Payment 1979). Some, such as Pascal Breland, William Dease, Joseph Hamelin, and Charles Nolin were notably more successful than others. Many continued as voyageurs and tripmen, working with York boats, and yet others became involved in the freighting business (Morton 1967). However, it should be kept in mind that the whole economy of the nineteenth century Northwest was based upon the fur trade. For those not directly involved in trapping or trading, a second major economic activity developed. This was the production and procurement of dried bison meat and pemmican (Morton 1967; Foster 1973; Ross 1972) which resulted in the development of the bison hunt as an organized hunting system run by the Metis. The bison hunt occupied an increasing number of people from the beginning of the nineteenth century until the herds became dramatically reduced in size. The last organized hunt out of Red River was in 1868, and the number of people involved was considerable. In 1860, there were 500 men, 600 women, 680 children, 730 horses, 300 oxen, 950 carts involved in the hunt (Nor'Wester 1860, August 14).

Pemmican was not only a major staple for the fur trade, but it also supplemented the produce of the small agricultural colony. It constituted a major portion of the diet for hunters, traders and farmers well into the 1860s (see Appendix 2-1). It was an important supplement for both farmer and hunter when crops failed. In years when the hunt failed, the farmers would often have a surplus available to the hunter. In this way, the farmer and those pursuing a seasonal migrant way of life complemented each other (Morton 1967).

A major aspect of the bison hunt was its dependence upon a credit/debit system maintained by the Hudson's Bay Company. As a result, many Metis families were in a situation of continual indebtedness to the Company (Ross 1972).

Additional occupations involved seasonal work such as that of the voyageurs and York boatmen, and the employment provided by the freighting business. Freighting became an alternative for those who could afford their own carts and oxen. The transportation business expanded in the 1840s as a result of agitation for free trade with the United States, as well as by the increasing business of local commercial establishments. Furs were primarily shipped south to St. Paul, Minnesota, in the 1840s. A variety of dry goods, stoves, and farming implements were brought back. In 1844, only six carts reached St. Paul but this number rapidly increased to 102 in 1851, 600 in 1858, and 2500 in 1869 (Mackintosh 1934:27). Trails expanded north and west to Forts Edmonton and Carlton.

Besides freighting, an additional economic development was that of the small trader. These were usually Metis who had been outfitted with goods by prosperous members of the Red River Settlement to service the Metis hunters on the prairie and to trade with the Indians. Profits, if any, would be divided between the trader and the outfitter. Initially, the former were outfitted by N.W. Kitson who was competing with the Hudson's Bay Company, as were other enterprising people in the settlement who became involved through Metis middlemen or with their own outfits (Foster 1973:243-44).

Many Metis who had settled on the river lots along the Red and Assiniboine Rivers became permanent, and quite successful, farmers. Havard (1880) characterizes their principal occupation as farming, stock-raising and fishing. While it was possible to become a successful farmer, there were a number of factors which hindered agricultural development as a whole in the Red River Settlement: the cooler climate of the nineteenth century, with its repeated fluctuation of excessive and inadequate precipitation;

cereal crops which were not adequately selected for this climate; and several successive grasshopper infestations which destroyed all or most of the crops (a thorough breakdown of crop failures and their causes is presented in Table 13). Another factor hindering agricultural development was the limited market; the Hudson's Bay Company was the sole purchaser, and there was no means for export of any surplus produce (Morton 1967). As a result, most farmers produced little surplus for sale and many Metis combined the two hunts, early summer for dried meat and pemmican, and late fall for "green" meat (Nor'Wester 1860, August) with their agricultural activities (Morton 1967). For most people in the Red River Settlement, a variety of occupations produced an adequate standard of living (Livermore 1976:127).

On the whole, there was a seasonal cycle to the year's activities. As already stated, the hunts took place in early summer and late fall. There were also whitefish fisheries in the fall on Lake Manitoba and at Grand Marais on Lake Winnipeg, in which some settlers participated (Morton 1967). During the winter, there was the opportunity of increased social interaction with the celebration of weddings, festivities, and sporting activities (Havard 1880), since the major subsistence activities for the year had been completed. In the spring, if there was an insufficient supply of pemmican on hand, some people turned to fishing or many families would move to Turtle Mountain in hopes of finding bison there (Morton 1967). This move helped relieve the pressure on the colony's supplies.

TABLE 13

A List of Partial and Complete Crop Failures in
the Red River Settlement
From Sprenger 1972:168-169

Year of Failure	Frost	Locusts	Drought	Other or Unspecified	Source
1813			x	x	W.L. Morton, 1949:306 fn6
1817	x			x	Selkirk Papers in A.S. Morton, 1938:20
1818		x			Shanley, 1908:11
1819		x			Nute, 1942:246
1820		x			West, 1966:22-23 Rich, 1967:250
1821		x			Nute, 1942:326 West, 1966:62-70
1822				x	Rich, 1959:v.2, 507
1823				x	Rich, 1959:v.2, 507
1825				x	MacEwan, 1952:20 Giraud, 1945:837
1826	x				Giraud, 1945:640 fn6
1832				x	Hargrave, 1938:102
1836	x				Ross, 1957:187-188
1837	x		x		Giraud, 1945:778 Glueck, 1965:20
1840			x		Bayley, 1969:72
1844				x	Giraud, 1945:836
1846				x	W.L. Morton, 1967:513, note 73 Bayley, 1969:79
1847	x				W.L. Morton, 1956:xxviii Giraud, 1945:836
1848		x	x		Giraud, 1945:779 W.L. Morton, 1956:xxviii
1850				x	Giraud, 1945:837
1855	x				Giraud, 1945:779
1856	x				Giraud, 1945:779
1857	x	x			Giraud, 1945:777-9
1861				x	A.S. Morton, 1938:37-38
1862				x	A.S. Morton, 1938:38
1863			x		A.S. Morton, 1938:38
1864		x	x		A.S. Morton, 1938:38
1865		x			A.S. Morton, 1938:38
1866	x	x		x	A.S. Morton, 1938:38
1867		x			A.S. Morton, 1938:38
1868		x			A.S. Morton, 1938:38

x = Cause of crop failure

The various occupations and economic success of some people more than others began to produce the beginnings of stratification within Metis society: (1) the farmer-trader at the top; next (2) the small trader and freighter, and those working as tripmen on the York boats or the cart trains, (3) followed by a third group composed primarily of the bison hunters, who ultimately became the nomadic hivernant (bison hunters) of the Cypress Hills (Morton 1967; Gosman 1977). The development of the above stratification became visible in the 1860s and '70s as negotiations for the transfer of Hudson's Bay Company territory to the Government of Canada created a number of political factions in Red River society. The aforementioned became visible in those people who had supported Louis Riel and the Provisional Government, and those who chose not to.

Shelter

Shelter is one of the prime considerations for any group of people. The style and method of construction can depend upon cultural tradition and/or innovations with available materials. The Red River frame construction technique (or piece sur piece) was used by all who settled in the Red River Valley (Ross 1972; Tremauden 1935). It was derived from the "colombage" half-timber construction brought to the St. Lawrence River valley by the early French colonists. Colombage construction was essentially a post-and-beam style of building, with filler logs between a framework. These can be either vertical, horizontal or at angles. The use of horizontal fillers became the piece sur piece style which was taken westward with French expansion into America (Mann and Skinvilis 1979).

The Red River frame technique utilized pre-cut components, usually oak (Ross 1972). These logs were hewn square and tongued or grooved as appropriate. The first steps in construction would have been to lay the sill logs to correspond to the size of the structure. The posts were then mortised into the sill. These would have been grooved to accommodate the tongued horizontal filler logs.

This style of construction is particularly appropriate in areas where long straight logs were in short supply. In addition, due to the modular nature of the construction technique, several teams of men could work on different sections, thus reducing the work period. Conversely, if there was a manpower shortage, one man could erect a fair-sized house, as the short sections were manageable for one person (Mann and Skinvilis 1979).

The square log structure, whether house or barn, was chinked with a straw and mud mixture, both on the inside and out. This was a yearly process of patching until the wood shrinkage (due to drying) had stabilized. In the piece sur piece method, the horizontal logs would have shrunk differently than would the upright posts (Mann and Skinvilis 1979). The interior and exterior of the house would also have been whitewashed (Elliott 1971). The overall effect of the thick wood, combined with layers of mud and straw, provided a warm shelter.

Roofing materials varied with thatch, bark or clay and in some instances, shingles -- usually of oak or cedar (Tremauden 1935;

Ross 1972; Elliott 1971). Figures 15 and 16 show examples of thatched roofs, and in Figure 17 one can observe how bark was used for shingles.

In Figure 18, a combination of roofing materials (clay and shingles) is shown. The overall structure, if well chinked and coated in mud and whitewash, would have provided a fairly weather-proof shelter, considering that present-day insulation standards are only recently stipulating a R19 for house walls. Table 14 is provided to evaluate the nineteenth century log cabin in terms of present standards. If logs were 10" to 12" thick, they would have given the walls an R value of 9 to 10 which is comparable to many modern homes built in the last 50 years before the emphasis on insulation.

TABLE 14

Insulation Values for some Building Materials
From Mann and Skinvilis 1979

Type	Thickness	R. Factor
Simple log and mortar	1'	5.3
Square pine timber rated across grain	1'	10.4
Hardwoods	1"	.91
Softwoods	1"	1.25

Havard (1880:323) offers an account of the typical Metis home as he perceived it:

> ... a small one storey structure, with often but one, seldom more than two or three apartments, scantily furnished. In one corner of the principal room is the bed of the head of the family, painted in some vivid color; an open fireplace tall and narrow, so as to accommodate logs placed upright,

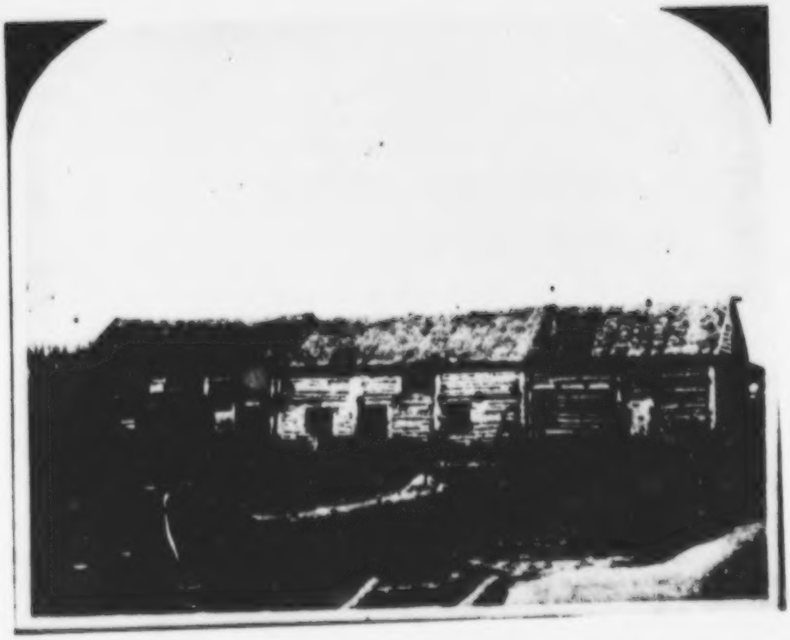


FIGURE 15 McDermot's store near Fort Garry, September-October 1858 (Hime collection Number 14). Courtesy of the Provincial Archives of Manitoba.

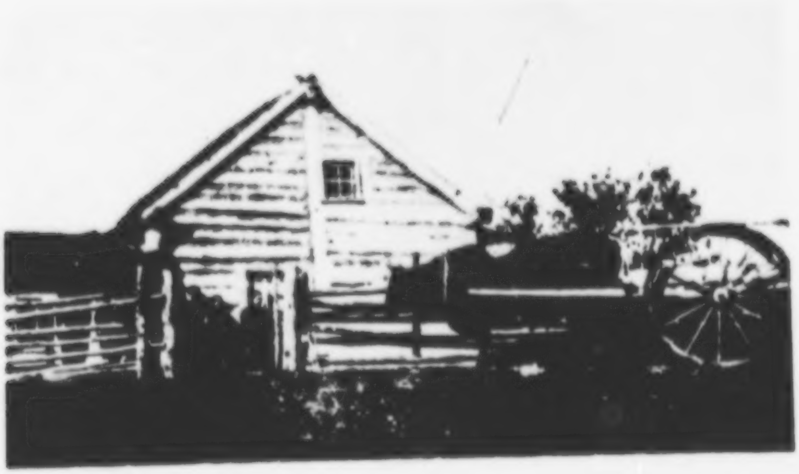


FIGURE 16 Red River cart and log home c. 1870. (Cowley Collection Number 7: photographer Ryder Larsen). Courtesy of the Provincial Archives of Manitoba.

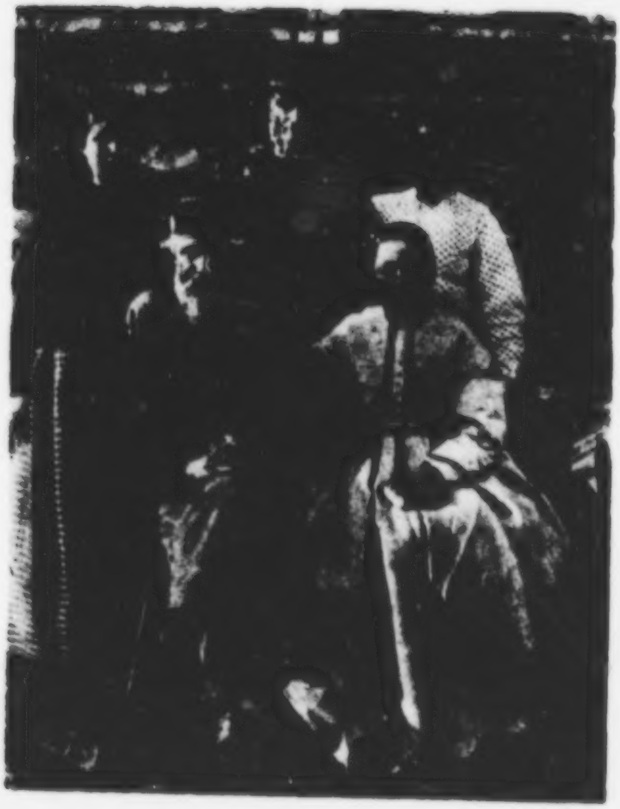


FIGURE 17 Trader McPherson's family. Roof construction: bark covering. (Boundary Commission 1872-1874, Number 24). Courtesy of the Provincial Archives of Manitoba.

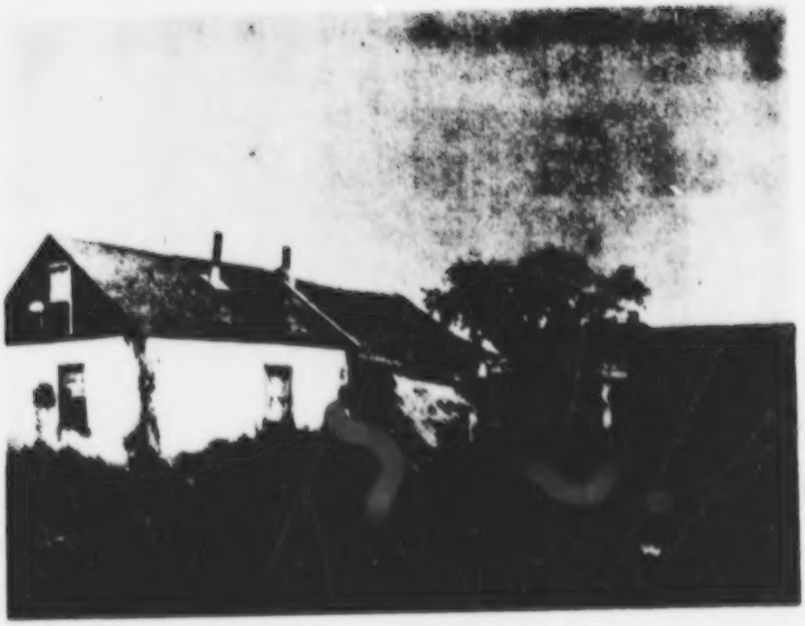


FIGURE 18 Office of Public Works Department, Saint Boniface, showing a variety of construction materials. Courtesy of the Provincial Archives of Manitoba.

> occupies the middle of one wall; a table, dresser, and a few boxes doing duty as chairs, constitutes the furniture. In this room, if it is the only one, eat and sleep all the members of the family. ... Metis who can afford to build larger and more commodius houses, often have them painted red and blue with sharp contrast of colors.

There was considerable variation from this general picture. In many cases, metal stoves for heating may have been in use by the 1840s with the increased volume of shipping by way of the United States. An example of a larger size of dwelling than described above can be seen in the Riel House (Government of Canada 1973). Here, the interior is divided into several rooms, with the upper storey showing signs of use as a living area. A similar situation existed in J.B. Charette's house in St. Norbert, where the upper storey served as a sleeping area (Shipley 1969).

The Metis house would also have had one or more cache pits. Shipley (1969) refers to the cold cellar for bison meat behind Charette's house. The Hivernant (Metis bison hunter) cabins in the Cypress Hills included three or more outside cache pits, besides the one (or more) within the structure. These outside pits were at least six feet from the house. They were left open permanently with one being used to dispose of ash (Elliott 1971; Bonnichsen, *et al*. 1973; Doll and Kidd 1976).

The other form of shelter used by the Metis, the tipi, was adopted from their Indian relatives. This was employed primarily during the bison hunts, due to its portability. The long poles used for its supporting framework were cut prior to entering the grasslands each year on the way to the hunt (Ross 1972). The covering was of dressed bison skins (Jamieson, in Elliott 1971:83). By the 1850s, canvas covers were also being used (Dawson, in Elliott 1971:83). Canvas tents had also been introduced by the 1870s as shown in Figures 28 and 29, where they are being used by the Metis Plains traders.

Clothing

There have been but few remarks in the historical accounts concerning the clothing worn by the Metis. In one account of the Red River Settlement in "Harpers", the author feels that there appears to be little to distinguish the French or Metis male, both wearing a large capote with a red belt. In fact, he "might be mistaken any day for the habitants one meets with travelling through Lower Canada ..." (Anonymous 1856:10). Havard (1880:319) goes into considerably greater detail as to style and material of clothing.

> In Manitoba the men usually wear a blue overcoat or capot with conspicuous brass buttons, black or drab corduroy trousers, a belt or scarf around the waist, leggings, and mocassins, the whole variously adorned with coloured fringes, scallops and beads. The legging is an important article of the young bucks' toilet, it is usually made of blue cloth, below which it is tied with a gaudy gaiter of worsted work, and has a broad stripe of bead work running down the outer seam. The women generally dress in a black gown with a black shawl thrown over the head, in a manner at once comfortable and becoming. The girls often wear a coloured shawl about their shoulders with a showy handkerchief upon the head, they like scarlet petticoats and prize gaudy ribbons and cheap jewellery.

These two descriptions are generalized. The degree of variation in clothing can be achieved to some extent by studying old photographs which, unfortunately, are in black and white. Figures 19 to 24 show men wearing the loose jackets which are stated as having been typical, and in Figures 20 and 22 the large flat buttons can be seen. Figures 19 and 21 also show the wide sashes or belts that were worn. In Figure 23, a boy and in Figure 24, two men are all shown wearing leather jackets with bead work. Havard (1880) relates that the Metis women excelled at working leather and producing fine bead work. The photographs also show a variety of footwear -- shoes and boots but with a preference for mocassins.

Descriptions of the style of clothing worn by women are scant. Figures 16, 17, 25, 26 and 27 show that female apparel had a wide variety of colours and patterns. None displays quite as much drabness (or gaudiness) as Havard has described. Most of the people "captured" by the camera seem to be shown in day-to-day clothing. Figure 27 shows the style of clothing worn by the more prosperous members of the Red River Metis society.

Transportation

The changes in the types of transportation used during the nineteenth century had a profound effect upon the development of the Northwest and upon the Metis way of life. The effects of climate and distance have also been determining factors on the development of the transportation routes from the seventeenth through to the

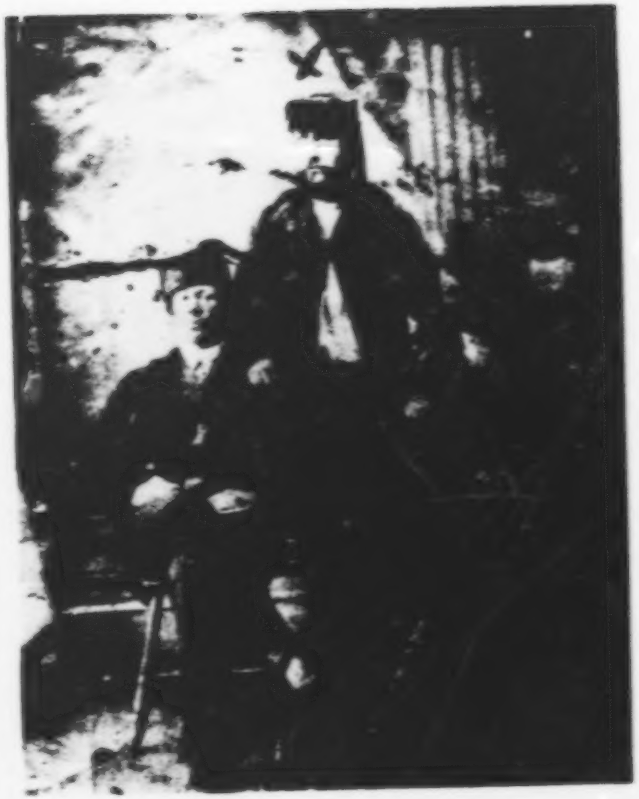
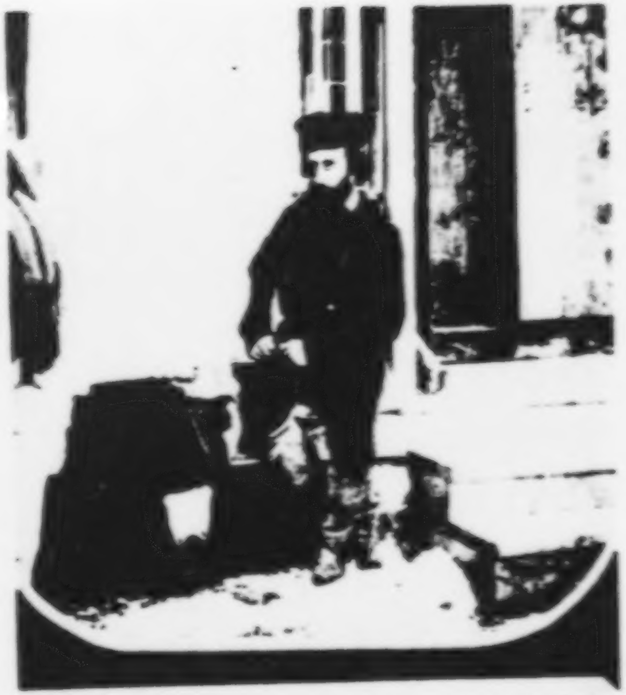


FIGURE 19 Variety of clothing. (H. Letourneau Collection, Number 25). Courtesy of the Provincial Archives of Manitoba.



John M^{c}Kay a Cree half breed M^r Hinds guide

Photograph by H.L. Hime 1857-8

FIGURE 20 John McKay, Cree Metis. Mr. Hind's guide. (Hime Collection, Number 27). Courtesy of the Provincial Archives of Manitoba.

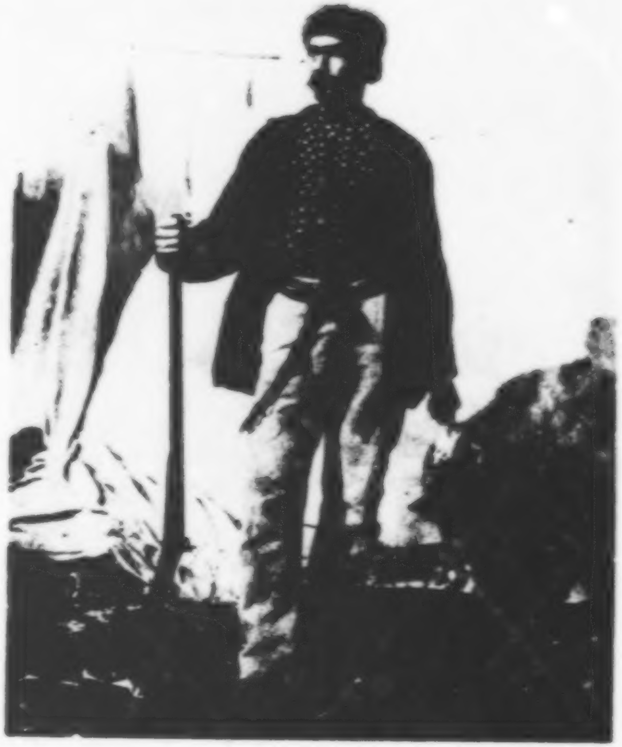


FIGURE 21 Metis guide, "Marion". (Boundary Commission 1872-1874, Number 29). Courtesy of the Provincial Archives of Manitoba.

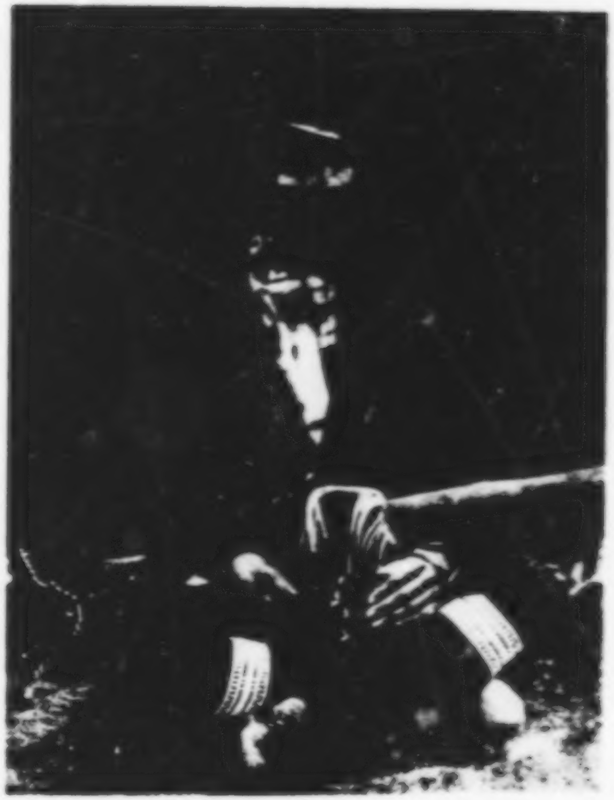


FIGURE 22 An Ojibwa Metis, Lake Superior, September-October, 1858. (Hime Collection, Number 30). Courtesy of the Provincial Archives of Manitoba.

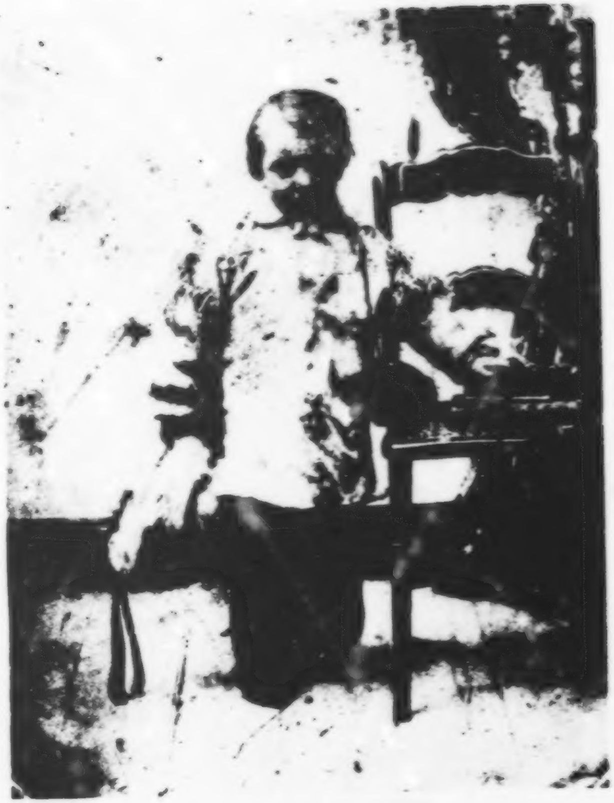


FIGURE 23 Example of child's clothing. (Bannatyne Family Collection, Number 120). Courtesy of the Provincial Archives of Manitoba.

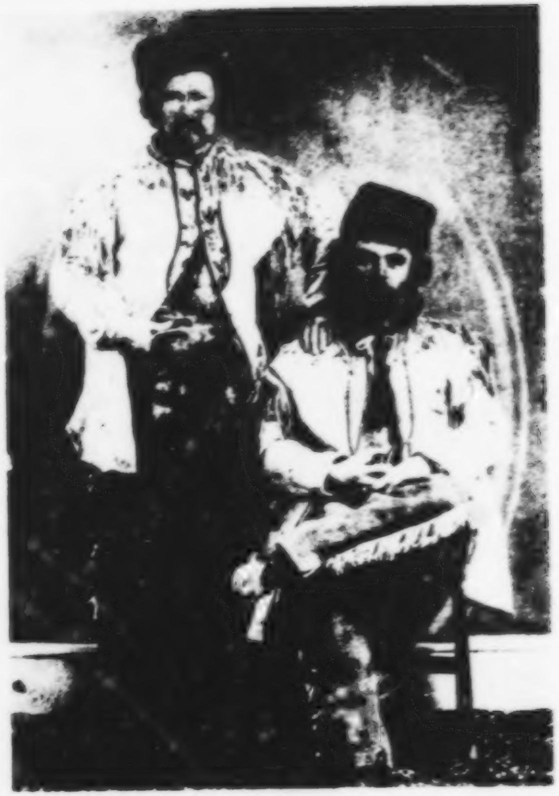


FIGURE 24 Example of men's clothing. (Bannatyne Family Collection, Number 119). Courtesy of the Provincial Archives of Manitoba.

FIGURE 25 Letitia, a Cree Metis, September-October 1858. (Hime Collection, Number 28). Courtesy of the Provincial Archives of Manitoba.

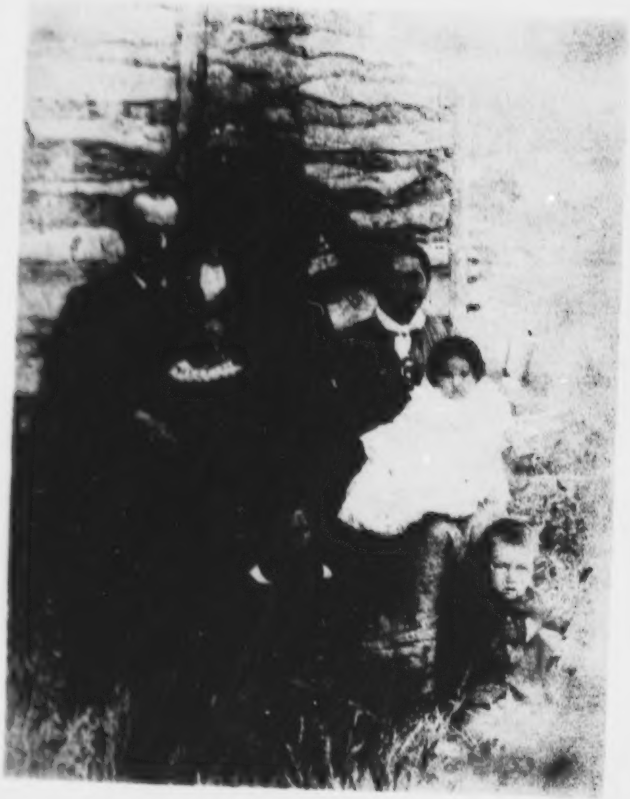


FIGURE 26 Family portrait showing a variety of clothing styles as well as construction material: squared log construction (Pascal Breland Family Collection, Number 15). Courtesy of the Provincial Archives of Manitoba.

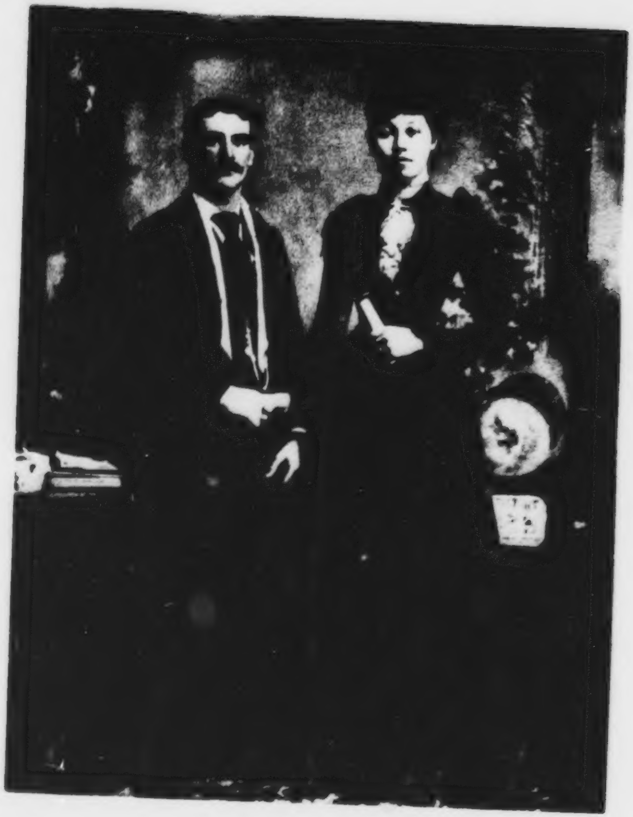


FIGURE 27 Metis couple, showing different style of clothing. (Pascal Breland Family Collection, Number 15). Courtesy of the Provincial Archives of Manitoba.

nineteenth centuries. The early northwestward and southward expansion by the French out of the St. Lawrence Valley utilized the birchbark canoe. These later developed into the large freighters used in the expansion of the fur trade by the subsequent companies such as the North West Company (from Montreal) plus independant traders.

Once the fur trade extended beyond Lake Winnipeg for both major companies, trans-shipment points developed such as the one at Bas de la Riviere at the mouth of the Winnipeg River on Lake Winnipeg and at "The Forks", the junction of the Red and Assiniboine Rivers. Canoe transport required a large number of men who were initially drawn from the St. Lawrence Valley (Campbell 1957). The Hudson's Bay Company's response to the freight problem was in part the development of the York boat (Figure 30), but these of course also required men. The crews were recruited primarily from the Orkneys in the British Isles. The later amalgamation of the two large companies was partly in response to the costs involved in shipping their goods transcontinentally. This in turn, created a major surplus, leaving many to settle in Red River (Morton 1967; see above).

The other major innovation in transportation in the nineteenth century was the Red River ox cart. Watson (1930:51) places the date for the manufacture of the first cart at 1801. It was used extensively by the Metis for personnel transportation during the bison hunts to carry their belongings and to bring home the loads of dried bison meat and pemmican as well as bison robes (Ross 1972).

These carts were also used in the freighting business which saw its beginnings in 1816-17. Colonel Robert Dickson "was accustomed to getting his goods and supplies from the Selkirk Colony, and bringing them up the Red River in carts made expressly for this purpose" (Pritchett 1942:251). Dickson was a British trader on Lake Traverse involved in a fur trade enterprise in this area, although regular freighting does not seem to have developed significantly until the 1840s.

The simplicity and utility of the cart can be seen in its design -- all wood and no metal parts. With a few basic tools, a man was able to construct his own and repair it himself (see Figure 16, 28 and 29). With these two types of transporation -- the York boat and ox cart -- the whole northwestern area of the continent was opened to trade. Cart traffic increased to St. Paul and St. Cloud, and even when the first rail link to Winnipeg was established, they were not completely displaced. It was not until 1871 that the last cart brigade was to leave for St. Cloud (Nor'Wester 1871). After the rail links were established, freighting still extended to Fort Carlton and Fort Edmonton, but there was a reduction in the number of people involved and again a displacement of manpower, especially after the transcontinental linkage was completed and some branch lines were constructed. These last two innovations completely eliminated the necessity for the ox cart and the York boat, except in the far Northwest. By 1859, the first steamship had reached Winnipeg, but its initial impact upon the transportation network was minimal, due primarily to the shallowness of the Red River in dry years.

FIGURE 28 Metis traders showing clothing styles, some items of everyday use and Red River carts. (Boundary Commission 1872-1874, Number 164). Courtesy of the Provincial Archives of Manitoba.

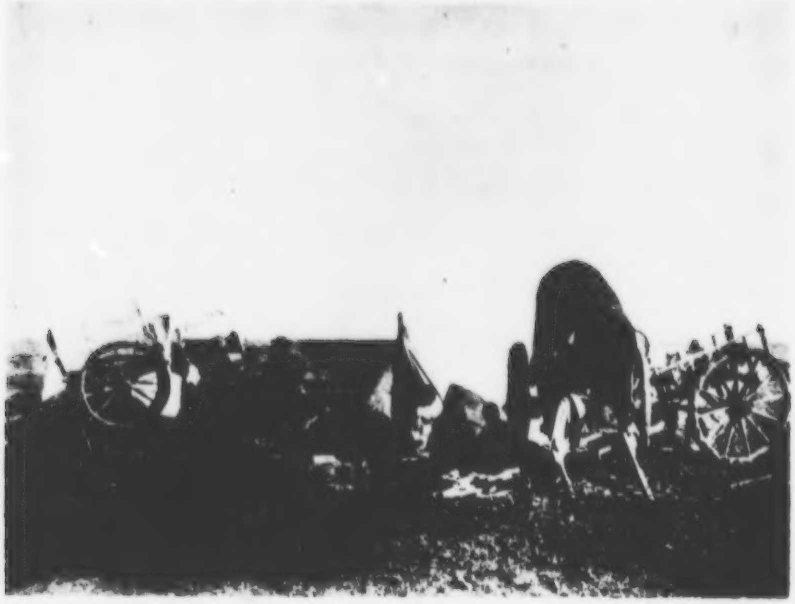


FIGURE 29 Metis traders. (Boundary Commission 1872-1874, Number 165). Courtesy of the Provincial Archives of Manitoba.

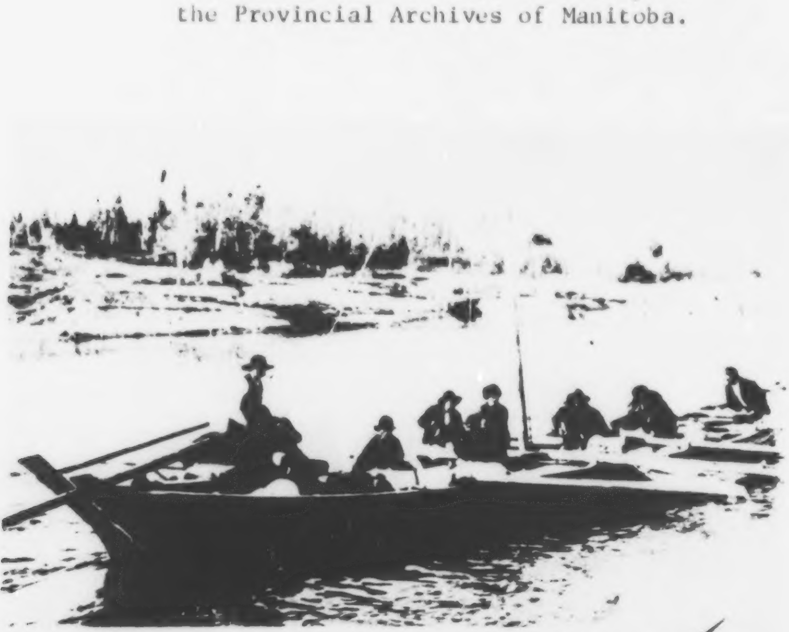


FIGURE 30 York boat. Courtesy of the Provincial Archives of Manitoba.

APPENDIX 2-1

Cost of Living in the Nineteenth Century

The products available for trade and sale in the nineteenth century, both in the Red River Settlement and throughout the Northwest as a whole, varied and increased over time. Initially, the products imported were directed primarily to the fur trade, as was the following list of goods itemized by Nicholas Garry for 1821 (Table 15). As settlement increased in Red River, there was an increasing demand by

TABLE 15

1820 and 1821 Standard for Trade Items
From the Journal of Nicholas Garry
(1900)

Item	Unit	Cost
Cloth common	1 yard	4 made beaver
Cloth second	1 yard	6 made beaver
Cloth superfine	1 yard	8 made beaver
Duffle of sorts	1 yard	3 made beaver
Fox tail	1 yard	3 made beaver
Flints	20	1 made beaver
Guns 3 feet	1	10 made beaver
Guns 3½ feet	1	11 made beaver
Guns 4 feet	1	12 made beaver
Guns fowling	1	20 made beaver
Powder	1 pound	2 made beaver
Tobacco	½ pound	1 made beaver
Blankets (striped)	1	8 made beaver
Rum	¼ gallon	1 made beaver
Shirt flannel	1	2 made beaver
Shirt cotton striped	1	2 made beaver
Shirt white	1	2 made beaver
Soap	1 pound	1 made beaver
Vermillion	1/16 pound	1 made beaver
Hats, cotton	1	2 made beaver
Jackets, cloth	1	3 made beaver
Waistcoats	1	3 made beaver
Cords, pack	1	1 made beaver
Beads, common	3/8 pound	1 made beaver
Shot	1½ pound	1 made beaver

the settlers for different products, especially those more suited to an agricultural way of life. The increased efforts of the founders also added new products to the local market. This change in markets is reflected in the goods advertised in the "Nor'Wester". This appendix presents a cross-section of what was available, as well as the changes that took place over time. In 1821, items listed are primarily dry goods while from 1859 onwards there are building materials, hardware, fresh produce and meals (Table 16). It is interesting to note also that bison products were still of considerable importance to the local economy at Red River.

Although the monetary value of goods would have changed to some extent with changing economic times, the price of goods has been included. The goods itemized by N. Garry in 1821 have been given a price conversion from beaver into shillings (a unit of value in Britain used during this period). The price of goods varied with the distance from York Factory (initial costs plus transportation and similar expenses). Fort Garry charged 50% above York Factory prices. One "made beaver" was between three and four shillings. The 1821 items do not match on a one-to-one basis with those of 1859, 1866 and 1869, but they do give an idea of what was available. The number of advertisements for clothing items and household effects in the "Nor'Wester" had greatly increased by the 1860s and a fairly wide variety of supplies was avilable. Between 1820 and the 1860s, emphasis shifted from the needs of the hunters and trappers to those of the settlers and farmers.

TABLE 16

COST OF LIVING
(FROM *THE NOR'WESTER*)

1859

Hardware

Nails per pound/1 shilling @ 1 shilling 8 pence

Lumber

Oakpieces 20 ft. sq. each 3 shillings @ 4 shillings
Logs 12 ft. each 1 shilling
Boards per 100 3 ƀ
Planks doz. 4 ƀ
Fence pickets per 100 8 shillings
Shingles per 100 8 shillings @ 9 shillings
Firewood per cord 5 shillings

The Nor'Wester, December, 1859

1866

Lumber

Planks per 100 3 ƀ 5 s.
Boards per 100 2 ƀ 5 s.
Shingles per 100 15 s.

Hay per load 5 s.

Foodstuffs

Wheat	4 s per bushel
Barley	2 s/8 d per bushel
Oats	8 s per bushel
Rye	2 s/8 d per bushel
Onions	8 s per bushel
Carrots	8 s per bushel

Domestic beef, per pound 2 d.
Buffalo meat, per pound 2 d.
Pork, per pound 8½ d.
Mutton, per pound 8 d.
Pemmican, per pound 4 d.
Dried meat, per pound 2 d.
Moose nose 2 s 6 d
Moose meat, per pound 8 d
Chickens 1 s
Beavertail 2 s 6 d
Eggs, per doz 2 s
Domestic tallow 6 d
Buffalo tallow 6 d
Marrow fat 6 d
Butter 9 d
Cheeses 8 d
Buffalo tongues 1 s
Bosses 25 6 d

The Nor'Wester, November 17, 1866

1868 Red River Markets

Foodstuffs

	s	d		s	d
Wheat per bushel	6	6	@	7	0
Barley per bushel	4	6	@	5	0
Oats per bushel	3	6	@	4	0
Potatoes per bushel	3	0	@	4	0
Flour per 100 pounds	18	0	@	20	0
Beef per pound		5	@		6
Pork (fresh) per pound		10	@	1	0
Butter per pound	1	0	@	1	5
Cheese per pound	1	0	@	?	?
Eggs per dozen		2	@	0	10
Fish per pair	2	0	@	3	0

The Nor'Wester, April 15, 1868

1869 Red River Markets

Fresh Vegetables

100 bushels onions	8 s per bushel
1000 cabbages	1 s a sack
Swedish turnips	1 s a bushel
Beets	3 s
Carrots	3 s

The Nor'Wester, February 12, 1869

NOTE: £ = pound
s = shilling
d = pence
English currency

CHAPTER III

SITE HISTORY

Introduction

The purpose of the ethnohistorical research has been to place DkLg-16 within the historical and cultural setting of the nineteenth century. The population living up the river from the "forks" of the Red and Assiniboine Rivers was predominantly Metis, French-speaking and Catholic. Contrary to the image of a nomadic existence, it would be better to describe them as seasonal migrants, as the majority were involved in farming, differing only in the amount of acreage cultivated or the number of livestock kept (see Table 17). Additional income was derived either through participation in either the spring and/or fall bison hunts, or through employment as boatmen or tripmen for the Hudson's Bay Company. Additional research was conducted concerning the site: was it possible to determine who, if anyone, was recorded as owners and, if possible, to obtain family information? How applicable are the general statements about Metis society when applied to an individual site? This next chapter will examine the documentation relating to DkLg-16.

Site Location

The Garden Site, DkLg-16, is situated in the Parish of St. Norbert, within the Greater Winnipeg Region. It is located on the north bank of the Riviere Sale on the upper terrace at an elevation of 762 feet (232 meters) above sea level. Prior to 1975, the land

TABLE 17

SOCIO-ECONOMIC COMPARISON (MALES OF THE SAME RELATIVE AGE)

NAME	SONS OVER 16	SONS UNDER 16	DAUGHTERS OVER 15	DAUGHTERS UNDER 15	TOTAL NO.	BUILDINGS	ANIMALS	IMPLEMENTS	CARTS	ACRES
Pierre Beauchamp		3		3	8	3	17	2	4	4
Vital Tourcotte		2		2	6					
Antoine Lambert		1		1	4					
Baptiste Comptois				3	5					
Alexis Goulais		2		3	7	3	5	2	2	10
Louis Blondon		1		1	4	1				1½
Antoine Bruce		1		1	4	2	8		2	10
Baptiste Beauchemin	1	1		3	7	2	10	2	4	4
Louis D'Lorme		2			4	2	7	2	3	10
Duchamps		3			5		3			
Thomas Frobisher				4	6	2	7	2	2	5
Alexis Henry		3	1	3	9	2	8	1	4	5
Laderoute		3			5	2	4	2	3	4
Francois Morrisette		2		2	6	2	7	2	2	1
Antoine Morin		3		1	6	2	3		1	2½
Louis Morin		3		2	7	2	10	2	3	7
Baptiste Marcellais					2	3	5	3	1	5
Germaine Parisien					2	4	9		6	
Parenteau		3		2	6	3	20	2	6	5
Louis Reille		1		1	4	2	17	2	2	10
Antoine Vendal		5		1	8	2	5	2		7
Joseph Vermille	2	7			11		8	2	2	
Francois Bruneau	2			6	11	3	32	2	6	10
Francois Bouchier		2		2	6	3	3	2	2	5
Andre Carrier	2	5	1	2	12	2	3		1	3
Louis Capulette	1	1		2	6	2	10	2	6	6
Moses Carrier	2			2	5	2	2		1	7
Francois Dauphine		4		1	7	2	16	2	4	12
Joseph Dumas					2	2	5	1	2	3
Baptiste Desmarais				1	3		1			
Joseph Defond				3	5	2	20	2	1	5
Antoine Laliberte		2		1	5	3	7	2	3	4
Baptiste Lafournaise		5		1	8		15		3	
Francois Roi		3		1	6	2	8	2	3	10
Francois (Goselin) Gosselin		3	1	3	10	4	26	2	5	12
Joseph (Gallerneau) Galarneau				1	3	2	8	2	1	4
Joseph Charrette		5			7	3	18	2	4	6

SOURCE: Manitoba Census (Red River Census) 1849.

was owned by the Trappist monks as part of their monastery, which was established in 1892.

The methods of site location involved searching a variety of documents: old survey notes, maps, and air photographs. The old survey notes and the final draft map by George McPhillips (1874) provided the starting point for locating the site (Fig. 31).

The site was part of the nineteenth century Red River Settlement. Originally established as an agricultural colony by Lord Selkirk in 1811 on land granted from the Hudson's Bay Company (Morton 1967), settlement followed the Assiniboine and Red River Valleys. Hudson's Bay Company surveys divided the land into narrow, 2-mile-long river lots. These were distributed to settlers by sale and/or grant from 1811 to 1870 (Martin 1898). In 1870, the Hudson's Bay Company territory of Rupertsland was transferred to the government of Canada. This territory was viewed for potential colonization (Morton 1967) and the exploring expeditions of Dawson and Hind in the 1850s were directed towards evaluating its agricultural potential (Dawson 1968; Hind 1971). In 1870, the Dominion Land Surveyor, Duncan Sinclair, surveyed the Parish of St. Norbert and its river lots (Fig. 32). J.S. Dennis, the Chief of Dominion Land Surveyor, had recommended that the river lots be retained and incorporated into the plan to "... provide for townships six miles square, containing thirty-six sections, six hundred and forty acres each with a road allowance of one and one half chains around each section" (Beresford 1941:8). Sinclair, however, in his survey had omitted to take into

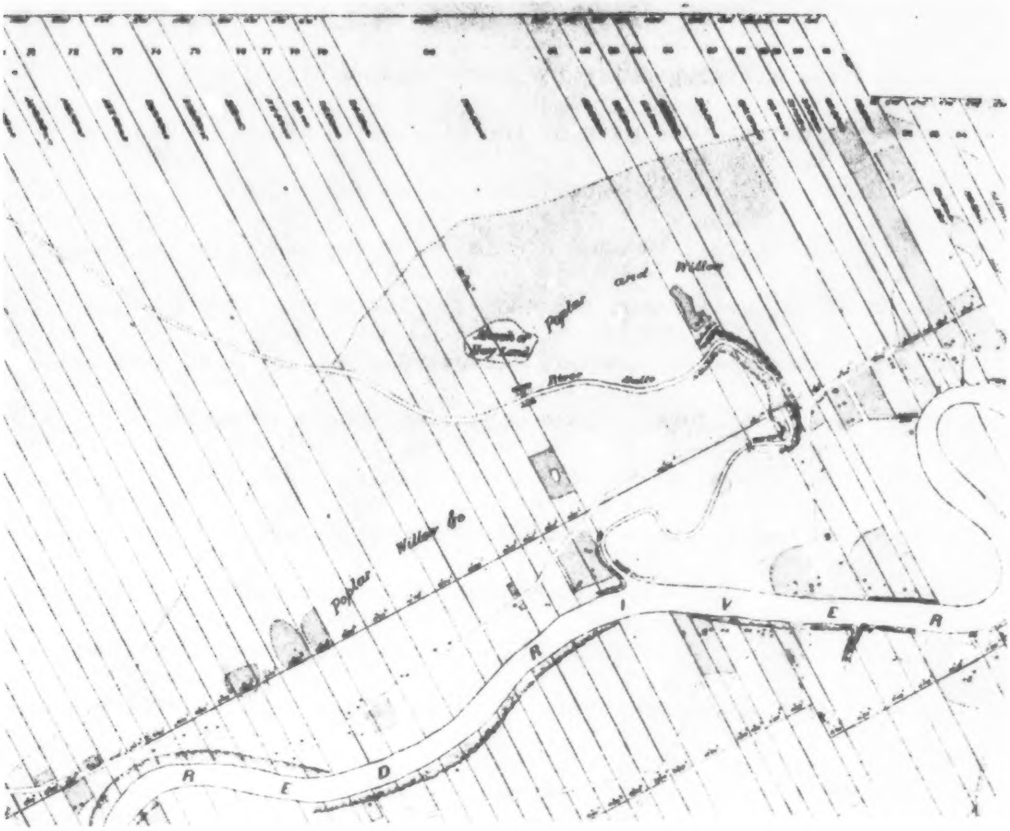

Poplar and Willow
River Salle
Poplar Willow &c
R I V E R
R E D

FIGURE 31 George McPhillips survey map showing Lots 75 through 91, west side of Red River, Parisn of Saint Norbert. (Map 614.11 gbbe 1874 sheet 7). Courtesy of the Provincial Archives of Manitoba.

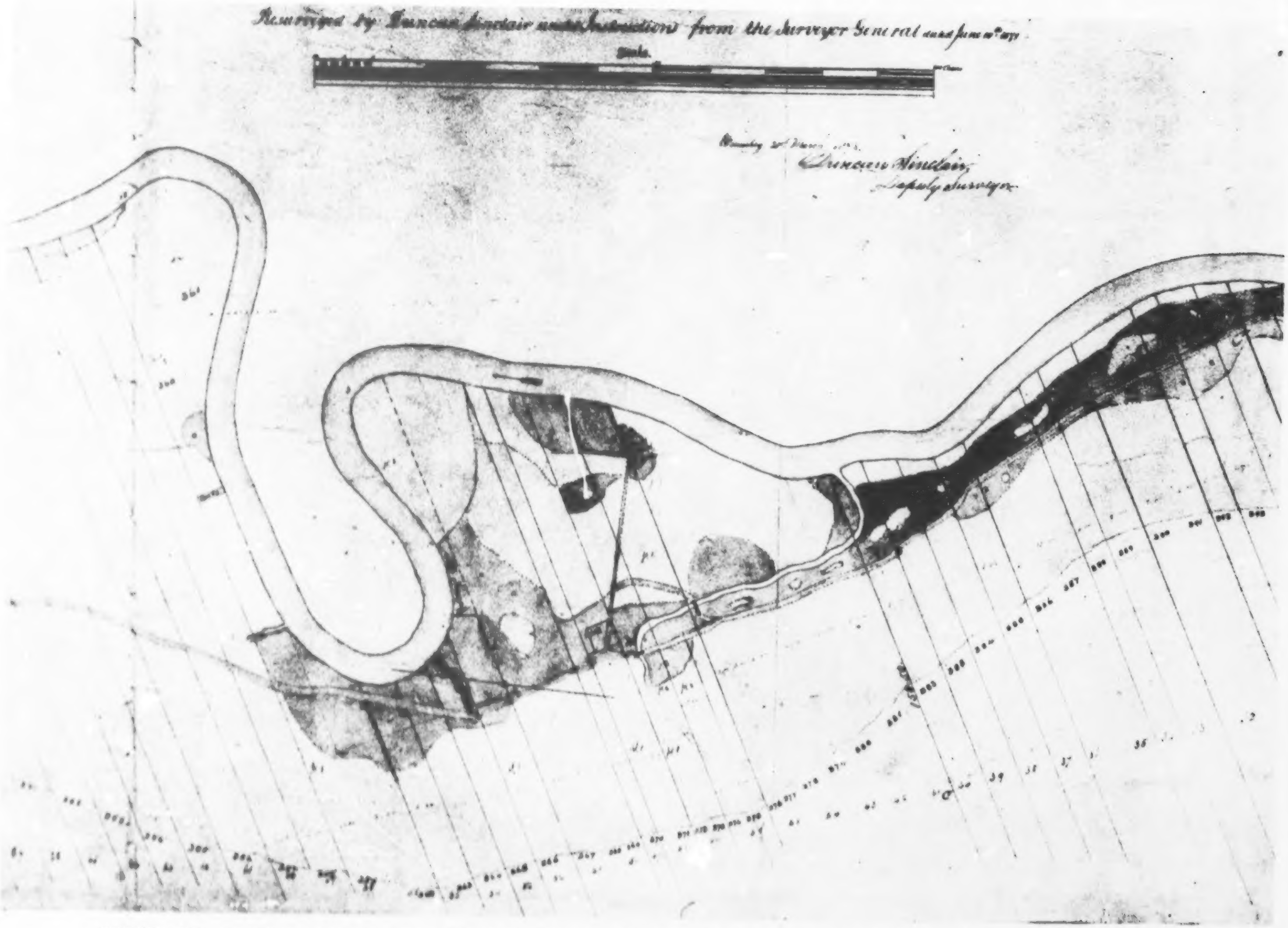

Resurveyed by Duncan Sinclair under Instructions from the Surveyor General
Scale.
Duncan Sinclair,
Deputy Surveyor

FIGURE 32 Section from Duncan Sinclair's map showing lots 374 and 375 (which became lot 81). Courtesy of the Provincial Archives of Manitoba.

account the land in back of each lot used for haying and cattle grazing, called the "hay privilege", by all the settlers. As a result, George McPhillips was requested to re-survey the parish as well as to determine as accurately as possible who owned which lots (McPhillips 1874). The early surveys of the Hudson's Bay Company provided the basis for both the surveys of the 1870s and the initial numbering system of the lots.

The present large-scale topographic maps of Winnipeg show remnants of the river lot system, primarily from tree lines and street patterns. After calculating the width of the average river lot, McPhillips' information was plotted on a map of Winnipeg (Fort Garry 2, scale 1"-400'). Using an existing tree line along a field, it was possible to locate the boundary of the lot that contains the site (Fig. 33). The McPhillips map shows the lot to be Number 81 in the Parish of St. Norbert. In addition, air photographs taken in 1928 and 1948 were used to verify the site's location in terms of traces of features drawn on the 1874 McPhillips map (Fig. 34 and 35).

Figure 31 is a segment of McPhillips' map. The lots run west from the Red River for two miles. Lot 81 is divided into three segments by the Sale River. There is a cultivated area with three structures shown just west of the Sale River. Compare this area with Figure 33 and 34. In the 1928 air photo (Fig. 34), a clearing appears to correspond to the cultivated area on the 1874 map. In the 1948 air photograph (Fig. 35), the site excavations are in a cultivated area. This area corresponds with the earlier air photo.

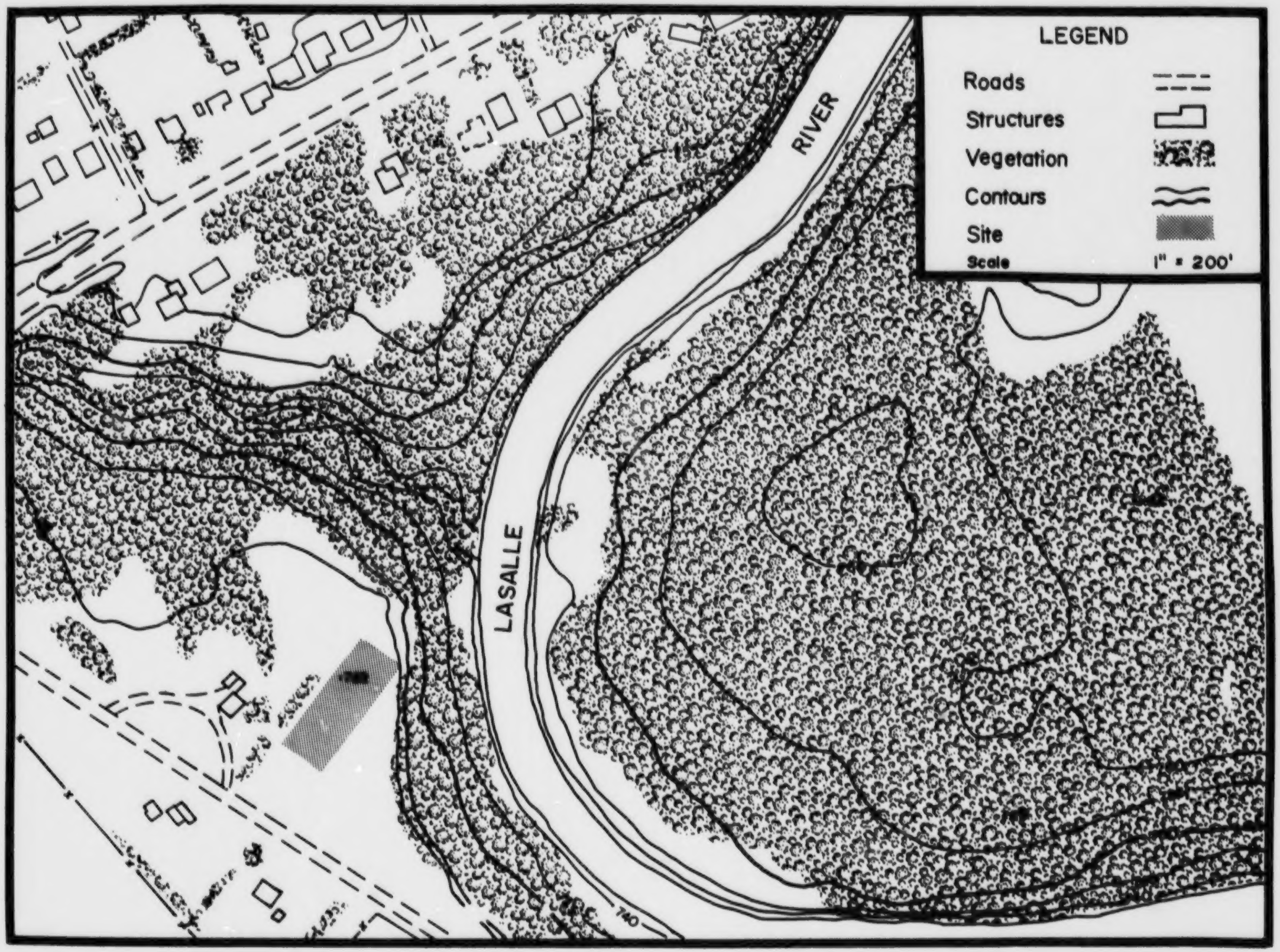

LEGEND
Roads
Structures
Vegetation
Contours
Site
Scale
1" = 200'
RIVER
LASALLE
760
740

FIGURE 33 Location of site and topography (Topographic mapping of the City of Winnipeg, Drawing B9).

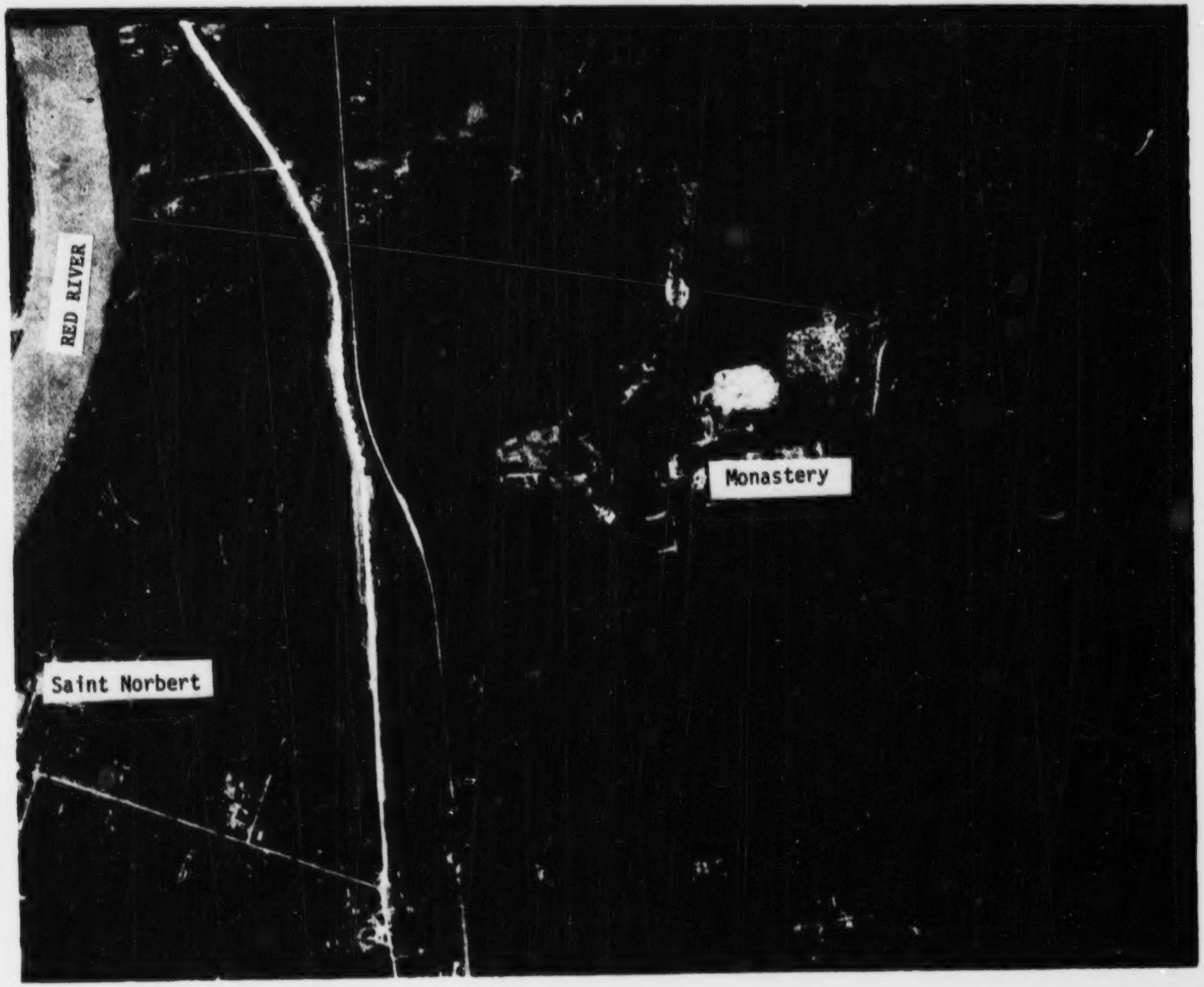

RED RIVER
Monastery
Saint Norbert

FIGURE 34 Vertical air photograph; Number A 41 98 (May 27, 1928). Courtesy of City of Winnipeg Planning Department.

FIGURE 35 Vertical air photograph; Number A11 320 249 (1948), showing high water in spring (enlargement of the original). Courtesy of the National Air Photo Library.

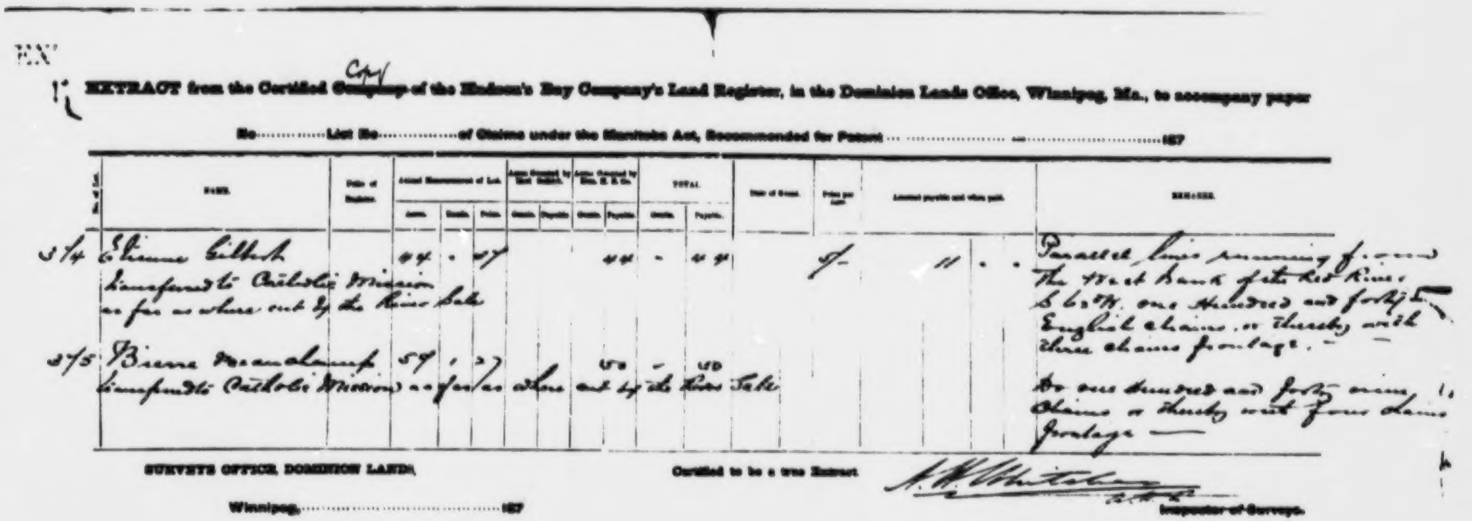
Other features in the 1928 photograph also correspond with McPhillips' map. The bridge that crosses the Sale River at the southern boundary line of Lot 81 was still visible fifty-four years later. On the basis of the above, it has been determined that DkLg-16 is located on Lot 81, which was the property of P. Beauchamp (see below).

Ownership History

On the basis of the preceding information, it was possible to determine ownership of Lot 81. Prior to the 1870s, the lot was designated as No. 374 and 375 under the Hudson's Bay Company Surveys, as can be seen in Sinclair's map (Fig. 32) which still retains the old system. The first documented owner for No. 374 was Etienne Gilbert, and in 1845 Pierre Beauchamp purchased the lot from Gilbert as well as Lot No. 375 from the Hudson's Bay Company.

The river frontage of No. 374 up to the Riviere Sale was given by E. Gilbert to the Catholic Mission, and it appears that Beauchamp did the same (Table 18). Beauchamp retained ownership of Lots 374 and 375 (Lot 81) until he died in 1865. His will (on file with Crown Lands) states that his son Abraham received a portion five chains wide, while his second wife, Scholastique (Versaille) Beauchamp was to receive the remaining two chains of river lot. Figure 31, McPhillips' map, shows the river lots of varying width which resulted from this practice of dividing the land upon death of the owner.

TABLE 18



EXTRACT from the Certified ~~Company~~ Copy of the Hudson's Bay Company's Land Register, in the Dominion Lands Office, Winnipeg, Ma., to accompany paper

No..........List No..........of Claims under the Manitoba Act, Recommended for Patent .... —..................187

No. of Lot	NAME	Date of Register	Actual Measurement of Lot			Acres Granted by Earl Selkirk		Acres Granted by Hon. H. B. Co.		TOTAL		Date of Grant	Price per acre	Amount payable and when paid	REMARKS
			Acres	Roods	Poles	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
314	Étienne Gilbert Transferred to Catholic Mission as far as where cut by the River Sale		44	.	27			44	-	44			9/-	11 . .	Parallel lines running from the West bank of the Red River S 60° W. one hundred and forty five English chains, or thereby with three chains frontage. —
315	Pierre Beauchamp Transferred to Catholic Mission as far as where cut by the River Sale		54	.	27			50	-	50					Do one hundred and forty nine chains or thereby with four chains frontage —

SURVEYS OFFICE, DOMINION LANDS,

Winnipeg,..........................187

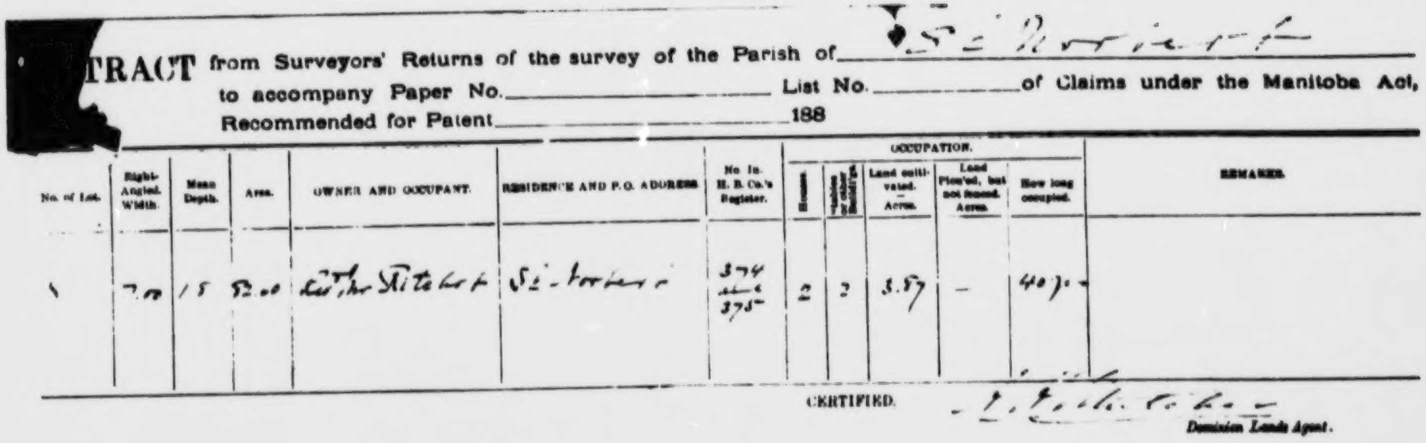
Certified to be a true Extract.

A. H. Whitcher

Inspector of Surveys.

Courtesy of the Provincial Archives of Manitoba.

TABLE 19



TRACT from Surveyors' Returns of the survey of the Parish of St. Norbert
to accompany Paper No. ______ List No. ______ of Claims under the Manitoba Act,
Recommended for Patent ______ 188

No. of Lot.	Right-Angled Width.	Mean Depth.	Area.	OWNER AND OCCUPANT.	RESIDENCE AND P.O. ADDRESS.	No. in H. B. Co.'s Register.	OCCUPATION. Houses.	Stables or other Buildings.	Land cultivated. Acres.	Land Plou'ed, but not fenced. Acres.	How long occupied.	REMARKS.
1	7.00	15	52.00	[illegible] Sitchert	St. Norbert	374 and 375	2	2	3.57	—	40 yrs	

CERTIFIED. [illegible]
Dominion Lands Agent.

Courtesy of the Provincial Archives of Manitoba.

Family History

Pierre Beauchamp and his family occupied the site for the longest period of time (1845 until 1868) and were perhaps the only occupants. Although E. Gilbert owned Lot 374 prior to their arrival, there was no documentation as to his having actually lived there. Pierre was a Metis (Manitoba Census 1849) and was born in 1812 in what is now Manitoba. At about 1832, he married Marie (Comtois) Morin, who became his first wife. Beauchamp had purchased lot numbers 374 and 375 in 1845, to which they moved with their two children, possibly from St. Boniface.

It was possible to determine P. Beauchamp's economic status from early Census data. In this way, it has been possible to follow his economic life to some extent (Table 20). The period of time when he moved to the St. Norbert area seems to have been one of increasing prosperity, as seen in the number of livestock and carts. Cart ownership indicates that he was probably working as a freighter, as well as the possibility of his involvement in trading. Gosman (1977) states that "assuming cart ownership meant trade, then they were in all likelihood involved in free trade". This is in reference to the number of individuals in St. Boniface owning four to six or more carts, especially those with as many as eleven in the 1840s. Apparently, this number would be more than necessary if the bison hunt were the sole occupation. An example of the more successful trader is that of Batoche (Payment 1979).

TABLE 20

Accumulation of Pierre Beauchamp's Assets
From Manitoba Census and P. Beauchamp's Will

	YEAR				
	1838	1840	1846	1849	1865
Pierre's age	26	28	33	38	53
Female children	1	1	3	3	3
Male children	3	3	3	3	3
Houses	1	1	1	1	2
Stables	M*	1	2	2	1
Horses	2	2	4	4	3
Cows	2	2	5	5	2
Oxen	2	3	4	4	2
Calves	2	3	3	1	0
Pigs	2	3	3	M	2
Mares	2	2	1	2	1
Carts	4	3	5	6	5
Acres under cultivation	3	4	3	8	M

Beauchamp had only three acres cultivated initially, but this increased to eight. Crops that were probably planted were potatoes and possibly some wheat and oats (Morton 1967; Ross 1972). These would likely have been for domestic use or possibly cattle fodder.

A comparative study was made to determine Pierre Beauchamp's socio-economic status relative to other men within the same age group of 28 to 48. Selection was restricted on the basis of (1) the same relative age, (2) cultural background, (3) where possible, individuals from the St. Norbert Parish files, and (4) information available in the early censuses. The 1849 Census was selected, and Table 17 lists the individuals and their statistics. The data indicate that Pierre Beauchamp was above average compared with other males in the same age grouping (Table 21).

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* M = no information available

TABLE 21

Comparison of Pierre Beauchamp's Assets with
Average French-Metis Settler
From Manitoba Census 1849

	Pierre Beauchamp's Assets	Average French-Metis Settler (35.5 yrs.)
No. in household	8	5.7
Buildings	3	2.02
Animals	17	8.5
Carts	4	2.4
Acres cultivated	4	4.7

Pierre Beauchamp's economic prosperity is reflected in his family size and their survival rate. Fritz Pannekoek (1976) has done a statistical analysis of the demographic structure of the Red River Settlement. One of his findings was that the families of European and Amerindian origin had a fairly high infant mortality rate. Beauchamp and his wife seem to have been quite fortunate in that all of their children reached maturity, with almost all eventually marrying. Figure 36 traces the family through three generations.

In 1862, Pierre's wife, Marie, died. Within a year he married his second wife, Scholastique Versaille, who was eighteen

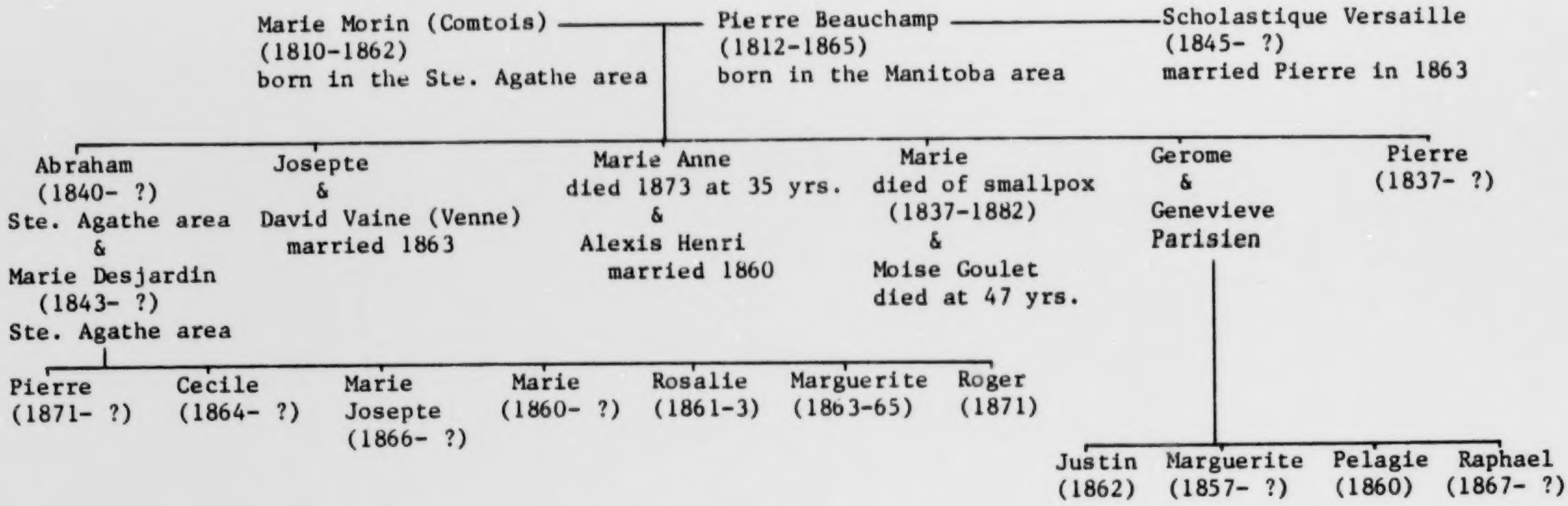
Marie Morin (Comtois)
(1810-1862)
born in the Ste. Agathe area
Pierre Beauchamp
(1812-1865)
born in the Manitoba area
Scholastique Versaille
(1845- ?)
married Pierre in 1863
Abraham
(1840- ?)
Ste. Agathe area
&
Marie Desjardin
(1843- ?)
Ste. Agathe area
Josepte
&
David Vaine (Venne)
married 1863
Marie Anne
died 1873 at 35 yrs.
&
Alexis Henri
married 1860
Marie
died of smallpox
(1837-1882)
&
Moise Goulet
died at 47 yrs.
Gerome
&
Genevieve
Parisien
Pierre
(1837- ?)
Pierre
(1871- ?)
Cecile
(1864- ?)
Marie
Josepte
(1866- ?)
Marie
(1860- ?)
Rosalie
(1861-3)
Marguerite
(1863-65)
Roger
(1871)
Justin
(1862)
Marguerite
(1857- ?)
Pelagie
(1860)
Raphael
(1867- ?)

Fig. 36: The Beauchamp Family Tree.

years old and also Metis. The second marriage was short-lived; in 1865, at the age of 53, Beauchamp died. His land was divided between Abraham (his oldest son) and Scholastique. An interesting stipulation was included in the will, viz, that his second wife was to be permitted to share the house with his son, but should the two disagree, then Abraham was to add a chimney and window in the outbuilding for her accommodation. In addition, he was to supply her with meat when she went on the bison hunts (P. Beauchamp's will is on file at Crown Lands, Province of Manitoba). Beauchamp had also requested that he be buried in the vault of the parish church. That this was done suggests that he enjoyed a fairly high status in the community.

In 1868, Abraham sold his five chains to Marcelle Roi in exchange for Lot 71. He also acquired Lot 68, all in the parish of St. Norbert. In 1870, Abraham sold Lot 68 to Joseph LeMay and the other two chains of Lot 81 to Reverend N.J. Ritchot, the parish priest. This in turn was given to the Trappists. Lot 71 was then sold to Raphael Bellefeuille in 1892. From this date on, the Beauchamp family can no longer be traced in the Red River Settlement.

The purpose of documenting the occupational history of the site has been to derive a basis for comparison of the archaeological material with historic record. Is it possible to correlate archaeological materials and features with historically recorded individuals or populations? Can one determine the "ethnicity" of the occupants based on recovered material, either through the artifacts excavated or ecological data? These are the kinds of questions being asked of the excavated materials.

APPENDIX 3-1

Chronology of Events of Significance Primarily to the Occupants of the Site and in General to Metis Society and to the Red River Settlement
1800-1899

1801	Alexander Henry the Younger describes the Sale River and the Red River upon which he is travelling to Pembina (Coues 1965)
1801	The Year the first Red River cart is said to have been built at Pembina (Watson 1930: 51)
1810	Marie (Comtois) Morin, first wife of Pierre Beauchamp, is born in Manitoba (Census of Canada 1871)
1811	Selkirk Grant, arrival of first settlers (Ross 1972)
1811-12	J.B. Charette constructs his home near the crossing of the Sale River (Morton 1967)
1812	Pierre Beauchamp is born in Manitoba (Manitoba Census 1879)
1818	Catholic missionaries arrive at Red River Settlement (Morton 1967:51)
1818-19	Survey of the International Boundary between Canada (British Territory) and America leads to disruption in trade (Campbell 1954)
1819	Grasshopper infestation, great destruction of crops (*Nor'Wester* July 22, 1874)
1820	Additional swarms of grasshoppers (*Nor'Wester* July 22, 1874)
1821	Merger of the North West Company and Hudson's Bay Company (Ross 1972)
1826	The "Great Flood" creates considerable disruption and damage to the Colony (Ross 1972)
1836	Crop failure in Red River Settlement (Ross 1972)
1837	Pierre Beauchamp Jr. and Marie, son and daughter of P. Beauchamp and Marie (Comtois) Morin are born (St. Norbert Parish Records)
1838	Marie Anne Beauchamp daughter of Pierre Beauchamp and Marie (Comtois) Morin is born (St. Norbert Parish Records)

1840	Abraham Beauchamp is born, son of Pierre Beauchamp and Marie (Comtois) Morin (St. Norbert Parish Records)
1843	Marie Desjardin is born, future wife of Abraham Beauchamp (St. Norbert Parish Records)
1844	Beginning of regular cart freighting to St. Paul, Minnesota (Morton 1967:94)
1845	Pierre Beauchamp purchases Lot 81 (Location of DkLg-16) from Etienne Gilbert (Crown Lands Records)
1846	Severe influenza and measles epidemic, primarily on the Whitehorse Plains area (Ross 1972:362)
1847-52	Period of manufacture of Copeland ceramic trademark recovered at site (see Chapter 6)
1852	Flooding, with considerable damage (Ross 1972)
1856-57	St. Norbert area is designated a Parish, receives a priest, Father Lestanc (St. Norbert Parish Records)
1857	Grasshopper infestation, some destruction (Nor'Wester 1874)
1858	Grasshopper infestation, considerable damage (Nor'Wester 1874)
1859	Anson Northup, first steamer to reach the Red River Settlement from the United States; Georgetown Minnesota, arrives May 15 (Watson 1930)
1859	School in St. Norbert for 101 families, girls are taught by the Grey Nuns (Dawson 1968)
1860	Marie Anne Beauchamp marries Alexis Henri (St. Norbert Parish Records)
1861	Flooding (Morton 1967:103)
1862	Death of Marie (Comtois) Morin, wife of Pierre Beauchamp (St. Norbert Parish Records)
1862-68	Drought years (Morton 1967:87)
1863	Marriage of Pierre Beauchamp (Senior) to Scholastique Versaille (St. Norbert Parish Records)
1864	Grasshoppers, little damage to wheat crops, but lay eggs (Morton 1967:114)

1865	Death of Pierre Beauchamp (Senior). Abraham, the oldest son and Scholastique, his second wife, inherit Lot 81 (Crown Lands file)
1867	Largest grasshopper swarm ever known, crops were far advanced, little damage (Nor'Wester 1874)
1868	Abraham Beauchamp sells portion of Lot 81 to Marcelle Roi (Crown Lands files)
1869	Survey of Meridian lines by Dominion Land Surveyors, J.S. Dennis in charge (Morton 1967:118)
1869	Grasshoppers, little damage to crops, late in season (Nor'Wester 1874)
1869-70	Negotiations for the transfer of Rupertsland to the Government of Canada creates unrest in the settlement, formation of Riel's provisional government (Morton 1967:119)
1870	Grasshoppers again, destroy most of growing crops (Nor'Wester 1874)
1870	The Manitoba Act
1870	Marcelle Roi sells his portion of Lot 81 to Reverend Noel Joseph Ritchot, parish priest of St. Norbert (Crown Lands file)
1871	Last brigade of Red River carts to St. Cloud, Minnesota (Nor'Wester)
1872	Duncan Sinclair does a survey of the Parish of St. Norbert (PAM - map no. 614.11 gbbc 1872)
1872	Scholastique (Versaille) Beauchamp sells her portion of Lot 81 to Rev. N.J. Ritchot (Crown Lands file)
1873	Marie Ann (Beauchamp) Henri dies (St. Norbert Parish Records)
1874	George McPhillips surveys St. Norbert (PAM 6.4.11)
1875	Grasshopper infestation (Morton 1967:175)
1876-77	Smallpox epidemic (Morton 1967:177)
1878	First railway reaches Winnipeg (Morton 1967:193)
1882	Marie Beauchamp dies, of smallpox (St. Norbert Parish Records)

1883	CPR reaches Winnipeg (Morton 1967:203)
1886	Drought and prairie fires (Morton 1967:210)
1892	Reverend N.J. Ritchot sets aside 500 acres for the founding of a monastery (Crown Lands file)
1899	Les Cisterciens Reformes du Monastère du Notre Dame des Prairies (the Trappists) establish their monastery in St. Norbert

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1866 June 30

1870 November 26

1874 July 22

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PART II

ARCHAEOLOGY OF THE GARDEN SITE

DkLg-16

CHAPTER IV

METHODS OF EXCAVATION AND STRATIGRAPHY

Methods of Excavation

Archaeological investigations at the Garden Site began on June 27, 1979, and continued until the middle of October. Initial indications suggesting the presence of a site were evidenced in a quantity of surface artifacts, both prehistoric and historic, plus a rectangular area of cultivated garden covered with small pieces of chinking. The prehistoric material was indicative of the Late Woodland period and the historic artifacts suggested a date of c. 1850 to post-1900.

The initial procedure was to establish a grid from a datum point positioned in the northwest corner of the garden. This datum was 165.7 meters, 87° 12' east of north from a stake that divided the property line.

The garden was divided into 10-m-by-10-m-quadrats which were subdivided into 2-m-by-2-m-units. Surface collecting was carried out within these smaller units. All surface artifact proveniences, save for unidentifiable bone, were recorded from the north and west axes. No definite distributional pattern suggestive of any cultural activities could be discerned. There was, however, a dichotomy between the north and south zones of the garden, in that historic artifacts were concentrated in the northern area, the prehistoric in the southern. It was postulated that two temporally separate components existed. Both areas were subsequently tested to determine if any of the components occurred *in situ*. Six 1-m^2 units and 20 shovel pits were placed in the southern half of the garden, but no in situ evidence of the prehistoric occupation was observed.

Research was then concentrated in the northern area of the garden where a total of 57 ½-m^2 shovel pits, 28 1-m^2 units, and 10 ½-m-by-1-m trenches were excavated (Figure 37). The 1-m^2 units and the trenches were excavated in 5-cm levels. The result of the research was the delineation of three features tentatively identified as refuse pits, all of which were different in size and stratigraphic sequence. The first feature, Feature 1, was only partially excavated. It had a depth of about 130 cm. Feature 2, the largest of the three, covered an area of about 12 m^2 and was about 90 cm deep. The third feature, Feature 3, was about 4 m^2 in size and was 85 cm deep. All units were back-filled when excavations were complete. The north walls of the two units in Feature 1 were covered with a plastic sheet before being back-filled.

Stratigraphy

In areas of the Garden Site where the features did not occur, the stratigraphy was uncomplicated. A plow zone extended from the surface to a depth of approximately 20 cm. Below this, to approximately 30 cm, a zone of undisturbed brown clay was found. Below 30 cm, light gray clay was encountered. This lowest level consisted of fine lacustrine clay typical of that found in this portion of the Lake Agassiz Basin (Ehrlich, et al. 1953:18).

One area in the south end of the garden did not conform with the above sequence. Here it appeared that a pit or trench had been dug into the gray clay and back-filled with darker clay. There were no artifacts found in this trench.

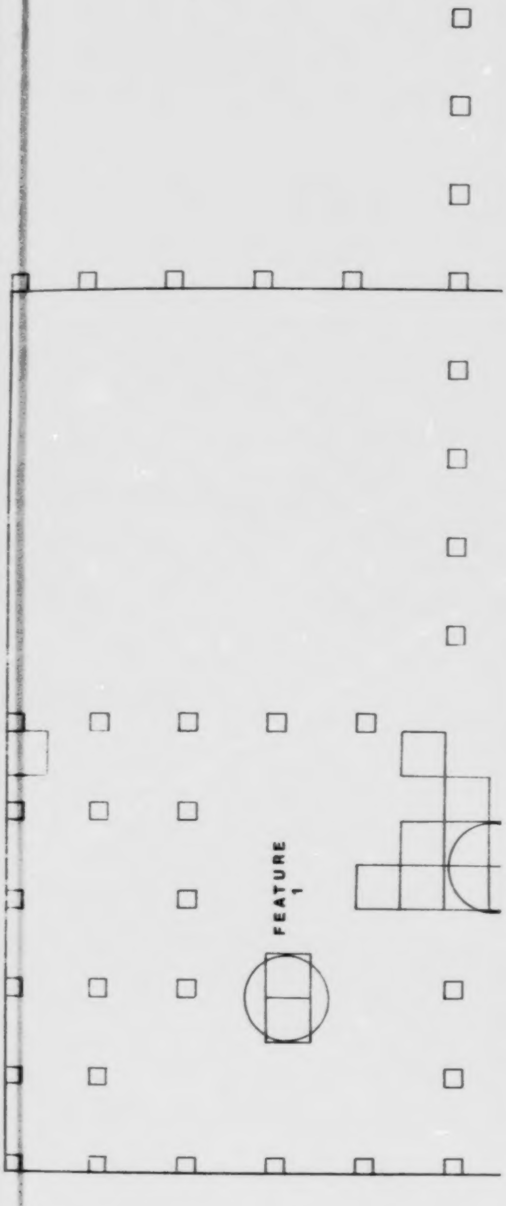


FIGURE 37 The Garden Si

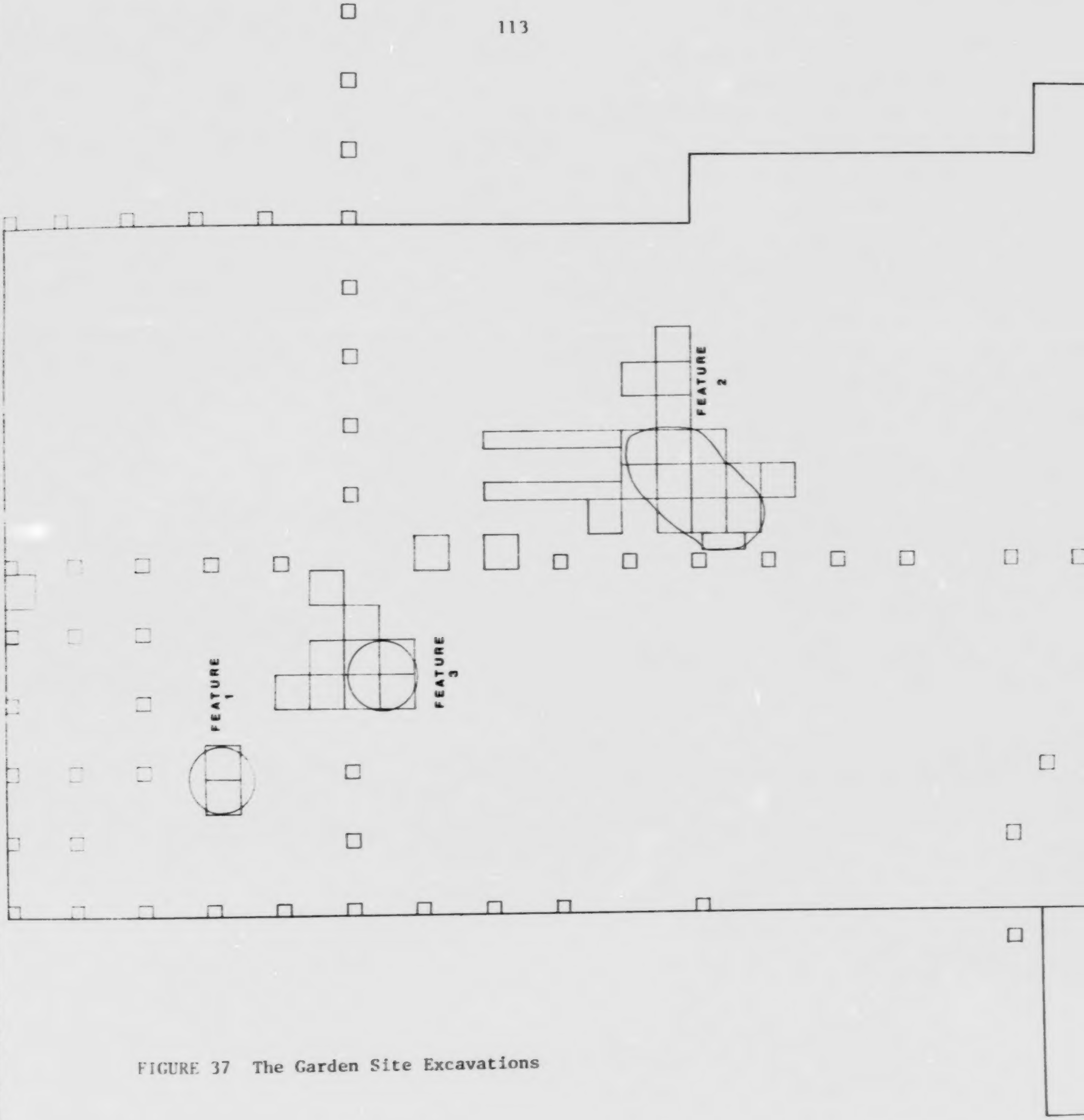
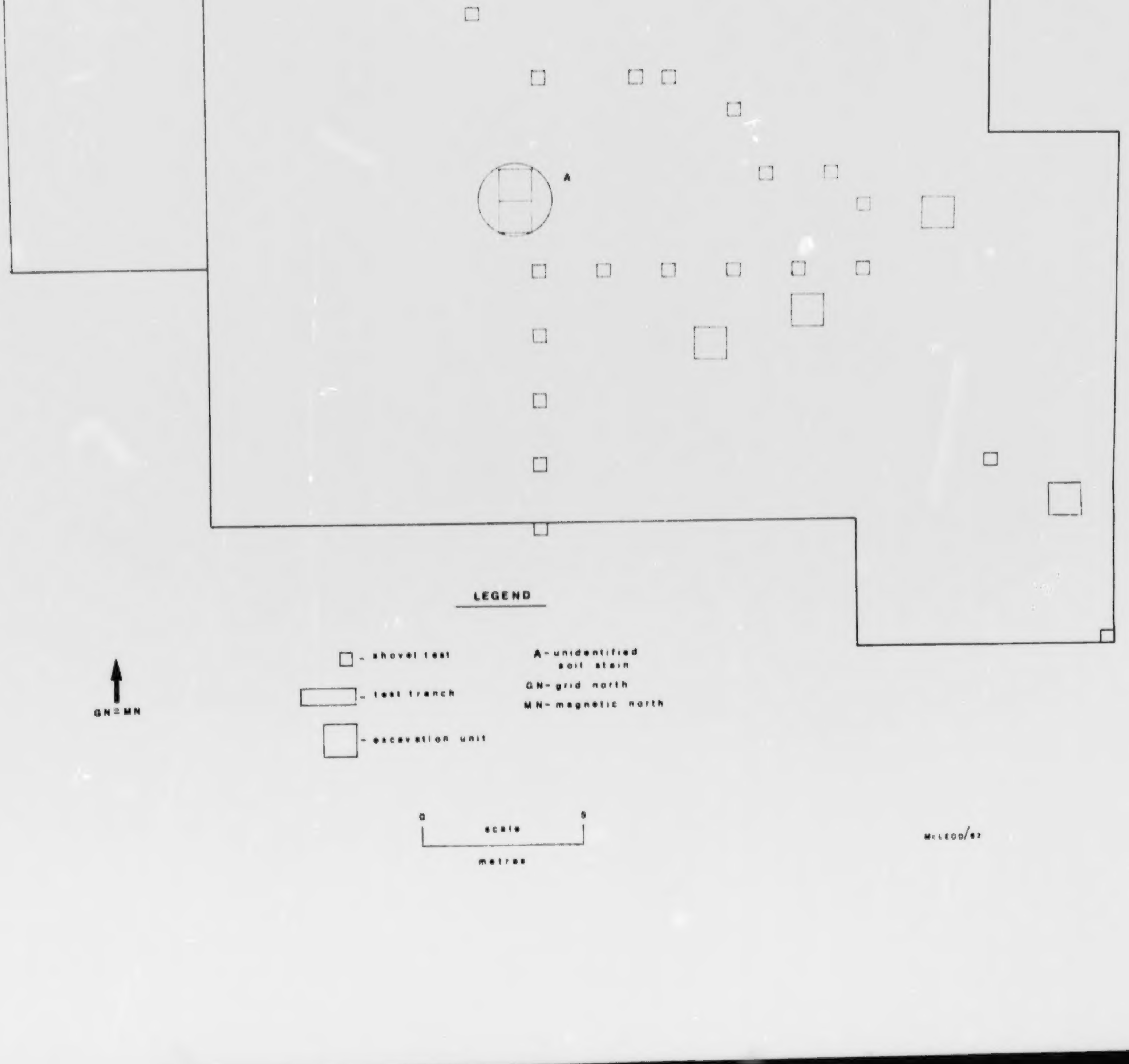

FEATURE 2
FEATURE 3
FEATURE 1

FIGURE 37 The Garden Site Excavations


A
LEGEND
☐ - shovel test
- test trench
- excavation unit
A - unidentified soil stain
GN - grid north
MN - magnetic north
GN = MN
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metres
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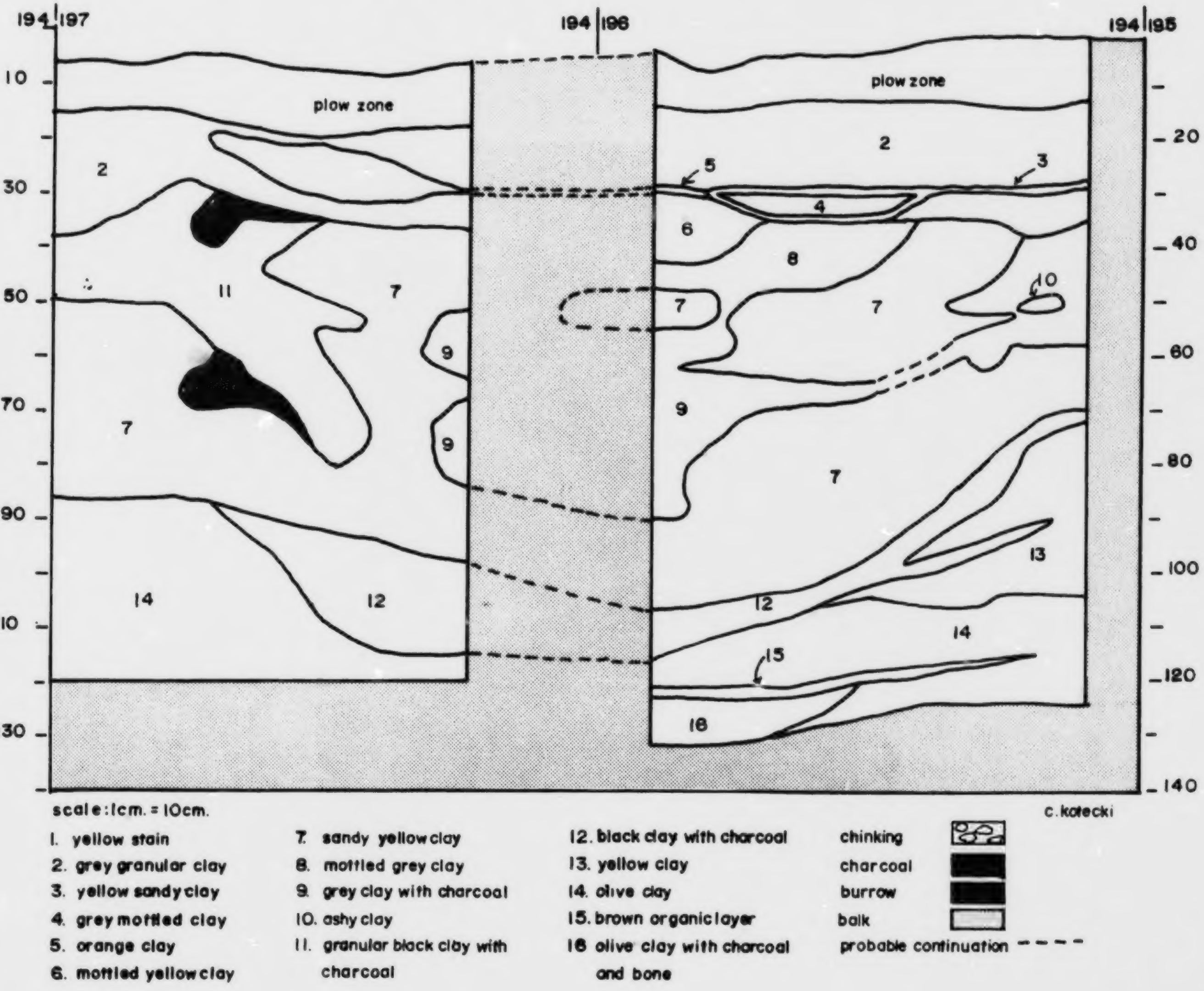
Features

Feature 1

An east-west cross-section of Feature 1, interpreted here as a refuse pit, can be seen in Figs. 38 and 39. Based on the stratigraphy it appears that there were at least two and possibly three periods of cultural deposition. This is based on the occurrence of three distinct soil layers which are divided by sterile clay, or clay with a considerably lower artifact frequency.

The lowest level, about 120 to 130 cm below the surface, contained two vertically separate soil zones, both of which yielded large quantities of artifacts. The lowest level of the two was composed of olive-gray clay mixed with charcoal and bone. The upper level was a brown organic layer containing charcoal, ash, bone, eggshell, seeds and wood fibres. This layer was extremely thin, measuring only 1 cm in thickness at any given point along its 30-cm oblique descent across the excavation unit. It would appear that these bottom layers were composed of organic and carbonized wastes mixed with clay.

These deep deposits were separated from a second cultural layer by a thin band of olive-brown clay. This latter layer may represent a slump in the refuse pit wall or possibly a fill placed on top of the brown organic zone by the occupants of the site to reduce the odour of the decomposing trash. If so, it is probable that the pit was re-utilized, as evidenced by the second depositional zone which is a black clay with charcoal stains. A large number of seeds was recovered from this zone, as was a quantity of beads and small pieces of chinking. This deposit


194|197
194|196
194|195
10
30
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70
90
110
130
20
40
60
80
100
120
140
plow zone
plow zone
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
scale: 1cm. = 10cm.
c. katecki
1. yellow stain
2. grey granular clay
3. yellow sandy clay
4. grey mottled clay
5. orange clay
6. mottled yellow clay
7. sandy yellow clay
8. mottled grey clay
9. grey clay with charcoal
10. ashy clay
11. granular black clay with charcoal
12. black clay with charcoal
13. yellow clay
14. olive clay
15. brown organic layer
16 olive clay with charcoal and bone
chinking
charcoal
burrow
balk
probable continuation

FIGURE 38 Feature Number 1: profile of north wall.

FIGURE 39 Photo of north wall of Feature 1.

may represent garbage deposition, possibly from the maintenance or cleaning of an inhabited structure.

The third cultural zone was considerably smaller horizontally but was rather extensive vertically. It was separated from the second deposit by a fairly thick band of sandy, yellow clay. This clay deposit could be a result of one of the floods that are known to have occurred at the site (Labelle, *et al*. 1966). The third cultural level was composed of grey mottled clay covered by a layer of yellow mottled clay. Artifact recovery in this zone was similar to that of the lower zones, but contained more nails and identifiable charcoal fragments. On the basis of artifact similarities, it is likely that this upper zone functioned in the same manner as did the lower two, with the different soil texture caused by the debris being mixed with flood clay, possibly while still wet. There were two other soil types flanking the left and right of this central one. These consisted of black granular clay mixed with chinking, and may be hearth or stove residue.

The upper levels of Feature 1 contained artifacts similar to those in the three lower layers and probably represent a mix of flood silt and the third cultural deposit. The plow zone extended vertically to an average depth of 20 cm. The grey plowed soil was differentiated from the undisturbed granular clay by consistency and texture. The former was homogenous with no fracture planes, whereas the latter *in situ* clay fractured in 90^o planes when trowelled.

Feature 2

Figure 40 illustrates part of the north-to-south cross-section of this feature. Figure 41 is a schematic cross-section 1 m west of that appearing in Fig. 40. The soil layers appear less complex than those of Feature 1; however, there are some difficulties with their interpretation. The basal layer was made up of the grey-brown Lake Agassiz clay, encountered throughout the site. Above this was a band of yellow clay which may represent flood silt. Contained within this silt was a narrow, elliptic band of mottled brown clay which contained artifacts. It is possible, as in Feature 1, that this second feature was also used as a garbage pit and was flooded during its use. Notice in particular the vertical block of yellow clay in the middle of Fig. 40; it appears that after the flood, a portion of the silt was cleared away and, to prevent slumping, the occupants placed some type of cribbing in the bottom of the pit. Then, as the pit was used, the basal area filled with debris to overflow the cribbing confines. This resulted in deposition of the fairly extensive layer of yellow-brown mottled clay that contains large amounts of charcoal. The mottled effect probably resulted from the mixing of decomposing refuse and silty clay. Numerous square black stains were observed in the wall profiles, and the possibility exists that the entire base of this garbage dump was filled with burnt squared logs.

Above the mottled band was an extensive layer of yellow clay mixed with chinking. Its most striking characteristic was the linearity of its base. The yellow clay and chinking probably represent the only concrete evidence of architectural structures at the site. It suggests

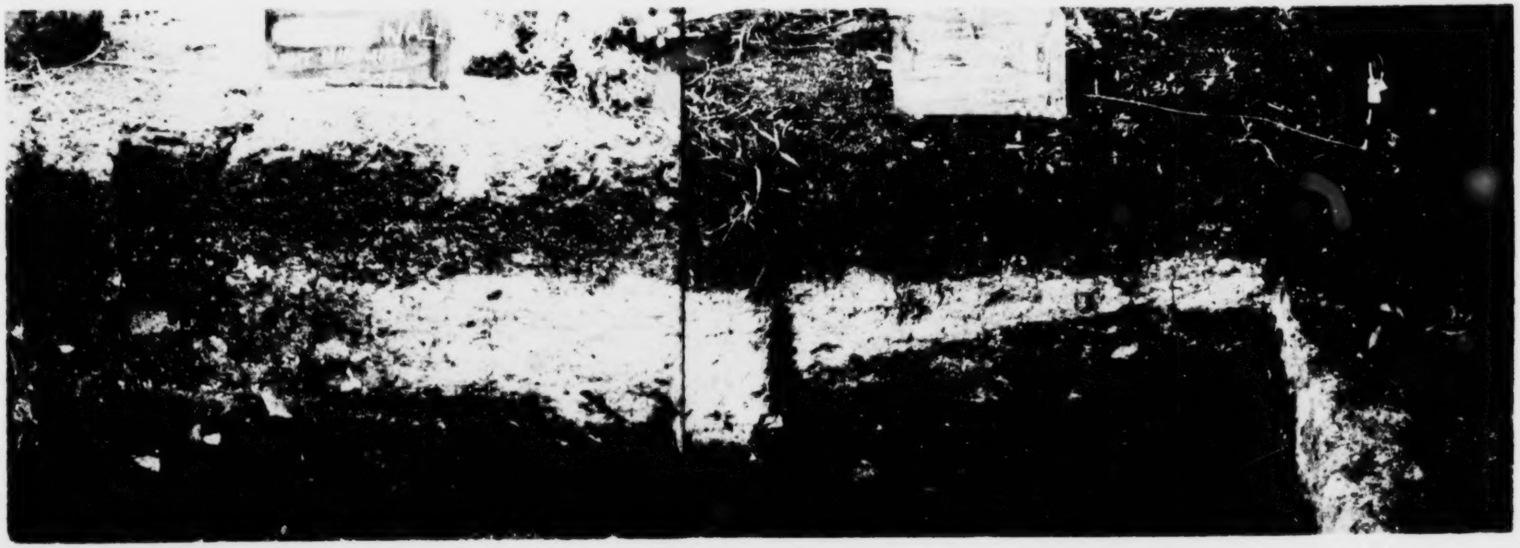

FIGURE 40 Photo of west wall of Feature 2.

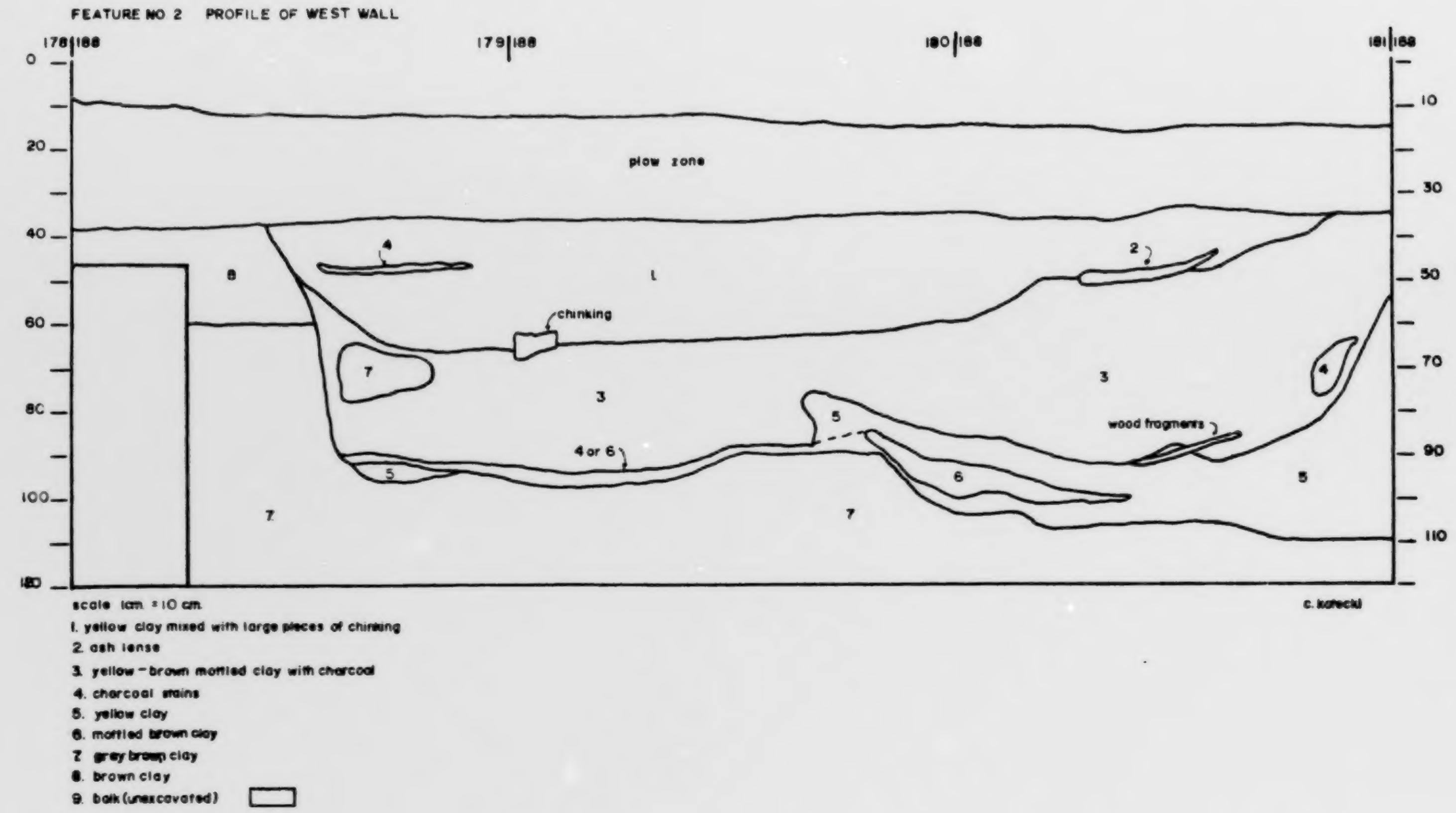
FEATURE NO 2 PROFILE OF WEST WALL
178|188
179|188
180|188
181|188
0
20
40
60
80
100
120
10
30
50
70
90
110
plow zone
1
2
3
4
4 or 6
5
6
7
8
chinking
wood fragments
scale 1cm = 10 cm.
c. kotecki
1. yellow clay mixed with large pieces of chinking
2. ash lense
3. yellow - brown mottled clay with charcoal
4. charcoal stains
5. yellow clay
6. mottled brown clay
7. grey brown clay
8. brown clay
9. balk (unexcavated)

FIGURE 41. Feature Number 2: profile of west wall.

that either a building was torn down and the debris placed in the garbage pit possibly to level the depression, or it may represent a time in the site's history when buildings were rechinked and refuse placed in the garbage pit. This zone produced far fewer artifacts that did the lower levels.

Feature 3

The entire north-to-south cross-sections of this feature are shown in Figs. 42 and 43. This third feature was not as deep as the other two, nor did it contain as many artifacts. This suggests that either the pit was not used as extensively or it functioned in a different manner.

The bottom of the feature rested on grey-brown Lake Agassiz clay. Above this was a thin band of dark carbon-stained clay which extended across the entire floor of the feature. Superimposed on this was a thick band of grey-yellow clay mixed with carbon flecks and pieces of orange clay. Contained within this deposit was a sloping band of dark charcoal-stained clay similar to that found at the base, and an organic layer mixed with tiny pieces of carbon. The grey-yellow clay at this point altered to a light orange-grey colour. Above this zone was a discontinuous deposit of yellow-orange clay which was in turn overlain by a layer of undisturbed top soil and chinking truncated by the plow zone.

A layer of white ash and carbon was also encountered at the same depth as the orange-grey clay. The ash was found resting on top of a piece of wood. Also resting on the wood was a thin deposit of whitewash or plaster.

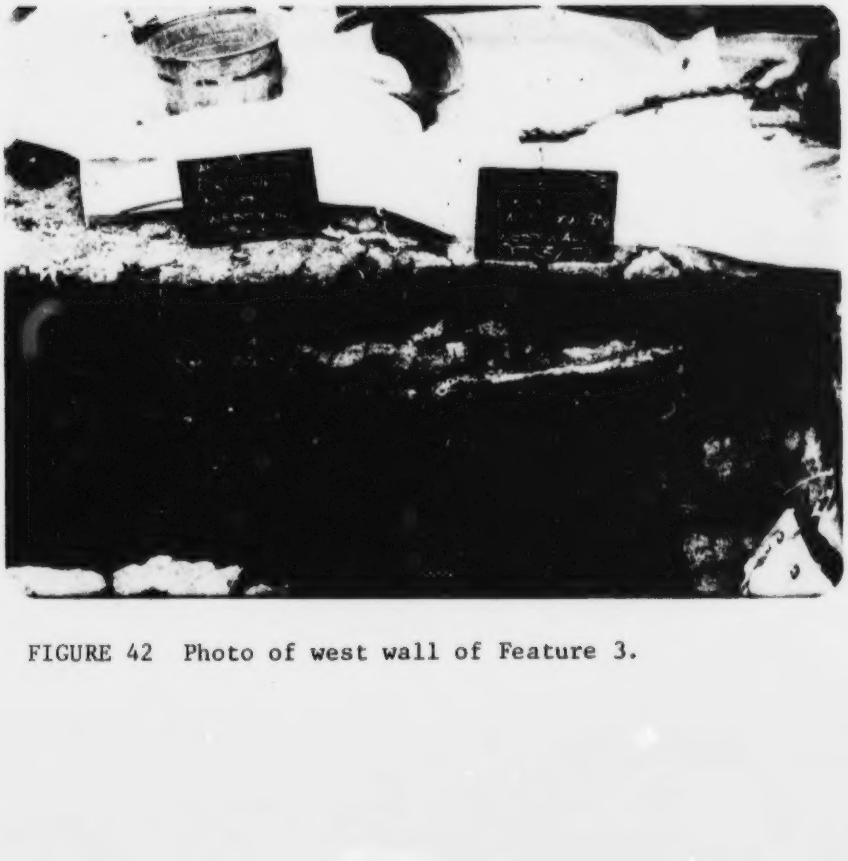

FIGURE 42 Photo of west wall of Feature 3.

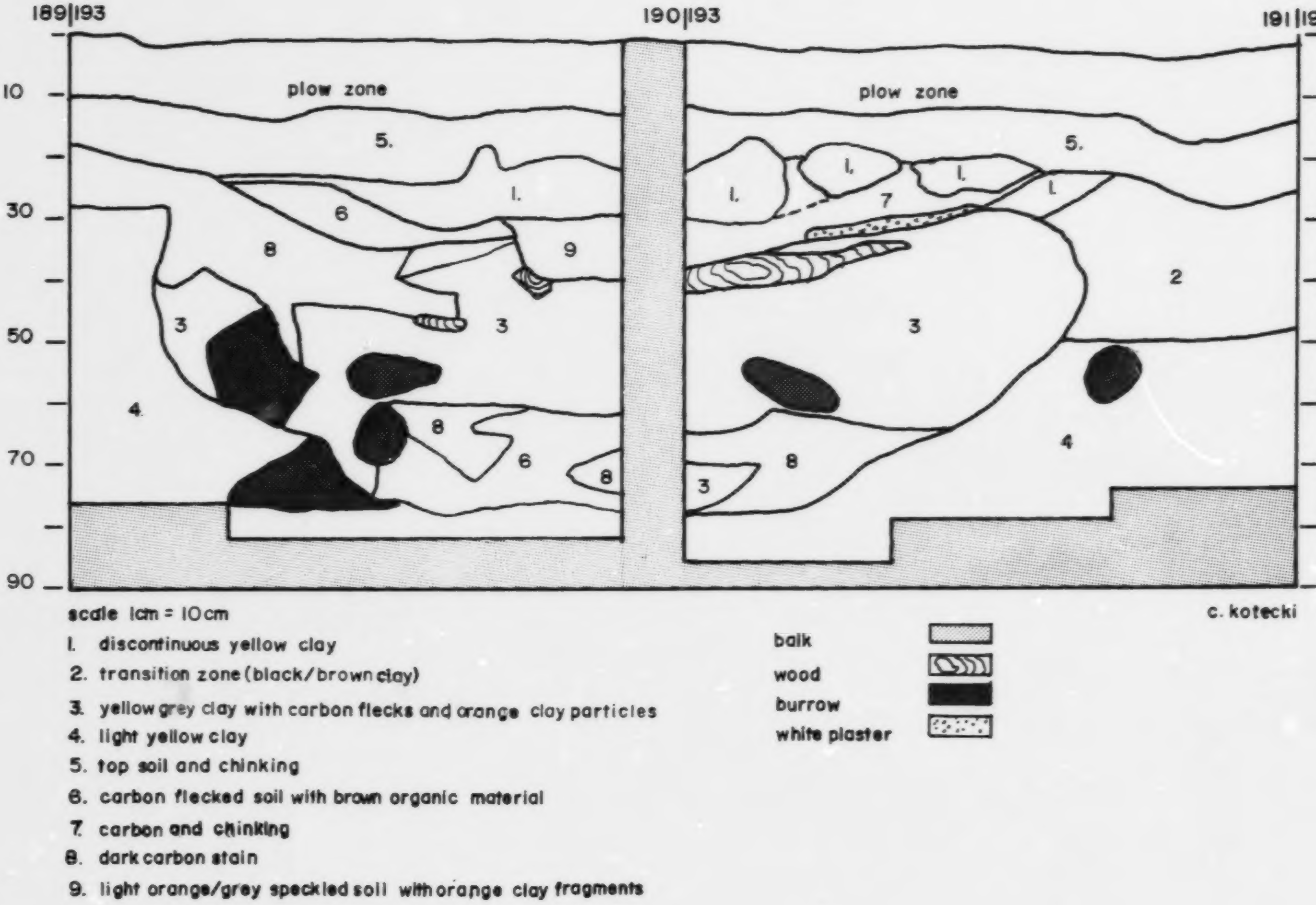
189|193
190|193
191|193
10
30
50
70
90
20
40
60
80
plow zone
plow zone
5.
5.
l.
l.
l.
l.
l.
l.
6
6
7
8
8
8
8
8
9
3
3
3
3
2
4
4
3
scale 1cm = 10cm
c. kotecki
1. discontinuous yellow clay
2. transition zone (black/brown clay)
3. yellow grey clay with carbon flecks and orange clay particles
4. light yellow clay
5. top soil and chinking
6. carbon flecked soil with brown organic material
7. carbon and chinking
8. dark carbon stain
9. light orange/grey speckled soil with orange clay fragments
balk
wood
burrow
white plaster

FIGURE 43 Feature Number 3: profile of west wall.

This feature is probably another refuse pit used for the disposal of fire hearth ash and other household debris. The orange colour of the clay probably resulted from the deposition of fired chinking. In fact, most of the chinking recovered from this area was orange-coloured, suggesting it had been fired. Its presence could indicate the deposition of a portion of a burned structure or else that chinking was deposited with smouldering wood.

CHAPTER V

PREHISTORIC ARTIFACTS

Introduction

When the Garden Site was initially discovered in 1978, prehistoric artifacts were recovered from the surface along with historic material. The bulk of the prehistoric recoveries were from the south end of the cultivated portion of the garden, with the lithics found nearer the river bank than the ceramics. Attempts in the southern area of the garden to locate in situ prehistoric deposits in 1979 proved futile; however some lithic flakes and one pottery sherd were recovered from excavation and test units.

For the purpose of description, the prehistoric artifacts have been divided into two main groups: lithics and ceramics. Unfortunately, the samples of each are too small and undiagnostic to suggest ethnic or temporal parameters.

Ceramics

A total of 32 aboriginal ceramic sherds was recovered and all but one are from the ground surface. The excavated sherd was from Feature 1 and was in the same level as glass beads and other historic articles, suggesting that it may have been redeposited by flooding or slumping of the refuse pit walls.

Of the 32 aboriginal ceramics recovered, 25 were fabric-impressed (Fig. 44a). This includes the sherd from Feature 1. Avon McFarlane, who in 1979 was working with the large ceramic

FIGURE 44 Prehistoric artifacts.

sample from Wanipigow Lake, Manitoba, tentatively identified the fabric as being "double oblique intertwining". This fabric impression is commonly found on Blackduck and Selkirk ceramics from Wanipigow Lake, suggesting that the Garden Site specimens are from the Terminal Woodland, dating from c. A.D. 800 to 1700 (Syms 1978). The only measurable attribute was thickness, with a mean average of 0.43 cm and standard deviation of 0.518. Sherds this thin are usually attributed to Selkirk vessels (A. McFarlane, pers. comm.).

Three sherds were smoothed on the exterior and were quite small, precluding further analysis. The two remaining sherds were split longitudinally, with only the smooth interior remaining.

Lithics

Projectile Point

This artifact was bifacially worked, with flake scars completely covering both sides (Fig. 44b). It was corner-notched on one side and side-notched on the other. The base was thinned but not ground. The dimensions (in cm) were: length - 1.99; width - 1.22; thickness - 0.34; base width - 0.11; notch width - 0.42 and 0.29; width between notches - 0.87. It was made of grey chert.

Biface

This artifact was made from Selkirk Chert and was bifacially flaked, with remnants of a percussion bulb forming a thick area near one basal corner (Fig. 44c). The dimensions were (in cm): length (fragment) - 2.98; width - 2.23; thickness - 0.71.

Flaking Debris

The flaking debris consisted of 5 kinds of material; Selkirk Chert (n=33), grey chert (n=14), chert (n=5), Swan River Chert (n=1), quartz (n=3), Knife River Flint (n=3) and agate (n=1).

Cores

The cores consist of Selkirk Chert (n=2), grey chert (n=2), orange chert (n=2), chert with fossil coral (n=1), and two unmodified nodules of chert.

Summary

The prehistoric artifacts described above probably date from the Terminal Woodland period based on the presence of fabric-impressed pottery sherds. The side/corner-notched projectile point is likely also from the same time period, as similar artifacts are commonly associated with fabric-impressed ceramics. This small prehistoric assemblage likely represents a temporary camp of a small group of nomadic people engaged in their yearly hunting round.

CHAPTER VI

HISTORIC ARTIFACTS

Introduction

Analysis of the historic artifacts was conducted using a formal/functional approach and the categories that form each of the discussion sections below reflect this. The primary objective of the analysis was to obtain temporal information from the artifacts in order to date each of the features. The latter could then be placed within an historical perspective *vis a vis* the historical information of known activities on the site discussed in previous chapters. Relative dates for artifacts were obtained either through method of manufacture or by diagnostic features such as decorative patterns or trademarks.

Results of the analysis are discussed primarily on an intra-site/inter-feature comparative basis. It was anticipated that similarities and differences of artifact types and counts might reveal dichotomies in terms of differing functional utilizations of the three features. A brief summary is included at the end of this chapter while more conclusive statements pertaining to analysis results are contained at the end of this volume.

Discussion of the artifacts in the following sections deals with formulation of the specific artifact type, a description of that type, and finally an interpretation of the analysed data.

Artifacts that required special analysis -- coprolites and cloth -- are discussed in the appendix, as are several artifact types recovered from the surface of DkLg-16 that are not feature-related (Appendix 6-2, 6-3, 6-4).

Housing and Construction

Nails

Introduction

A total of 240 nails were recovered and 77 or 32% of these were complete. The objectives of the nail analysis were to determine when structures were erected at the site; to gain an idea of construction techniques; to discern if any kinds of structural details may be determined; and, through horizontal and vertical distribution, to determine if any differences in nail distribution existed between the three features.

Nails were analyzed on the basis of six attributes: head form, shaft cross-section, shaft profile, tip form and, if applicable, thickness below the head, and length. From the combination of the above attributes, a morphological description of each nail was obtained. A numbered typology was established on the basis of nail head form (Figs. 45 and 46). Discussion will be by feature due to the number of nails acquired.

Feature 1

Type 1.0 Rose

Rose heads are characterized by the presence of several flat facets on the head of the nail (Figs. 45a, 46a). There were four such nails, all incomplete. These were of two varieties: round shaft (n=1), and rectangular (n=3). The round specimen was obtained from 120 cm,

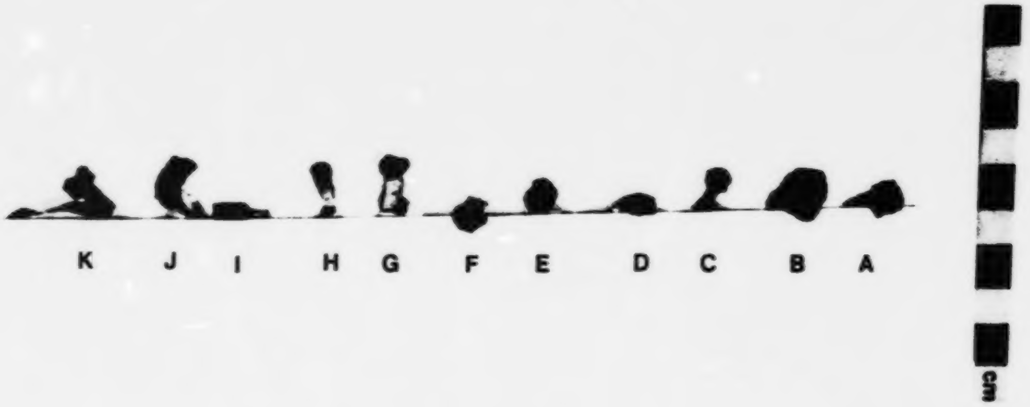

FIGURE 45 Nail types (vertical view).

(a) Rose
(b) Round
(c) Square
(d) One-side spur
(e) Two-side spur
(f) Plano-convex
(g) Rectangular
(h) Unanalyzable
(i) Horse shoe
(j) 90° blunt
(k) clasp

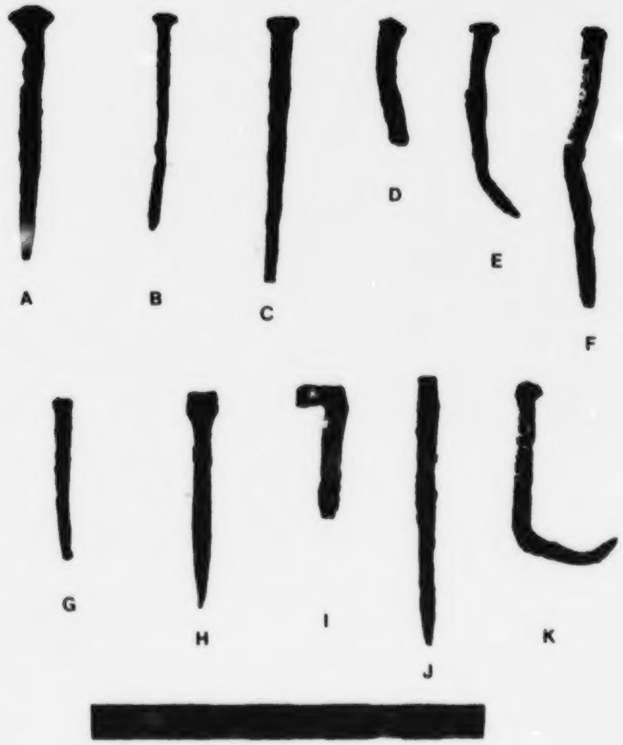

FIGURE 46 Nail types (horizontal view).
(a) Rose
(b) Round
(c) Square
(d) One-side spur
(e) Two-side spur
(f) Plano-convex
(g) Rectangular
(h) Horse shoe
(i) 90° blunt
(j) Headless
(k) Clasp

the remainder from 104 cm.*

Type 2.0 Round

There were two nails of this type, both complete (Figs. 46b, 47b). One was a screw measuring 1.70 cm long and was recovered from 26 cm. The second was a modern wire nail 2.0 cm, or 3/4 inches, long. It was found 50 cm below the surface.

Type 3.0 Square

There was a total of 22 nails, nine of which were complete (Figs. 45, 46c). The complete nails could be divided into three sub-types based on shaft and tip forms and into two sub-types based on shaft form alone.

Sub-type 3.1. Two nails had a square shaft and two-sided tapering point. They ranged in length from 4.0 cm to 6.5 cm (1½ to 2½ inches). The short nail was recovered from 56 cm; the longer from 82 cm. Both nails were machine cut.

Sub-type 3.2. One specimen had a rectangular shaft and a four-sided tapering point. It was 4.0 cm long (1½ inches), and was recovered at 32 cm. It was hand-wrought.

Sub-type 3.3. Six nails with a rectangular shaft and a two-sided tapering point were found. These ranged in length from 3.34 cm

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* Measurement notations of this category refer to depth below surface.

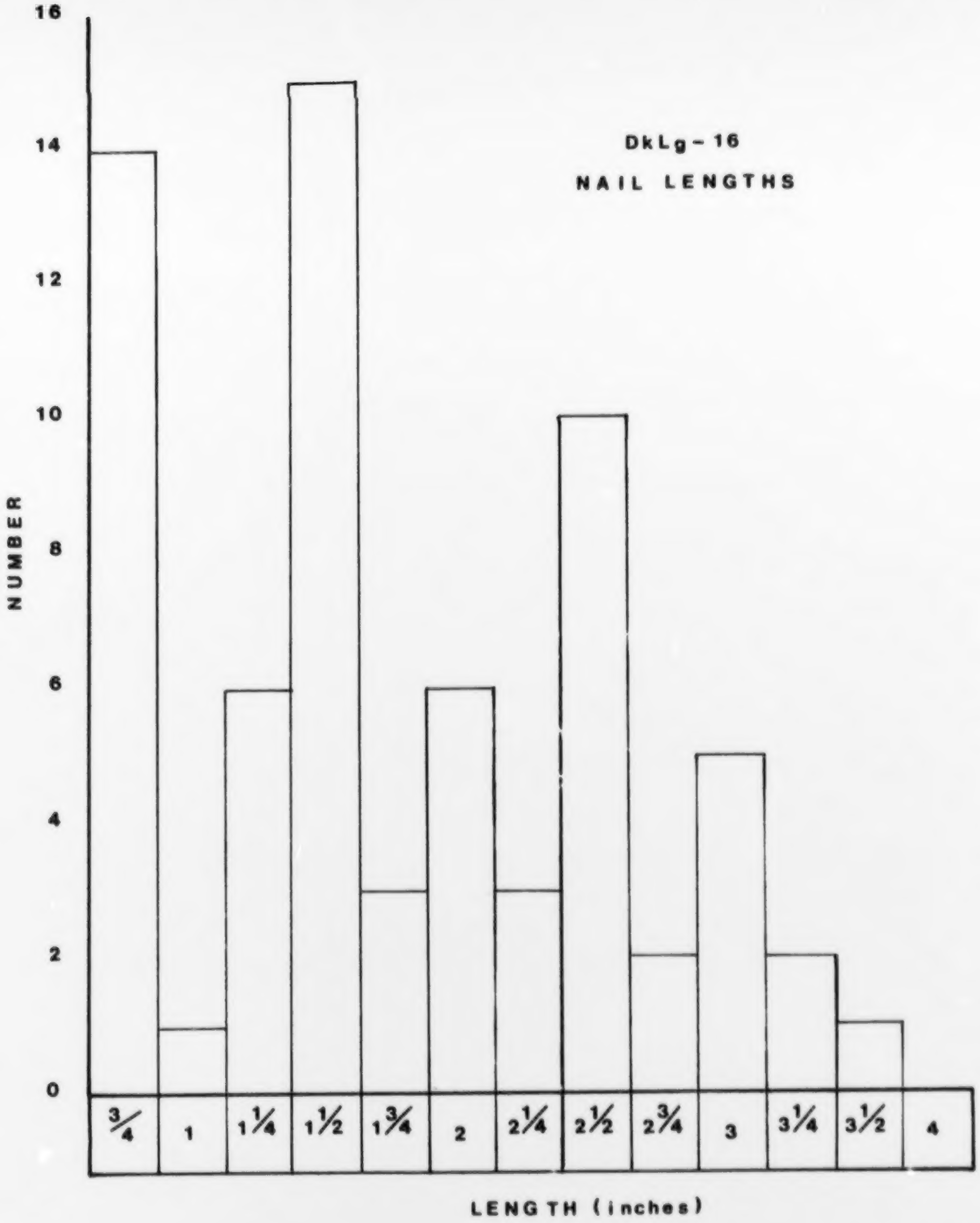


FIGURE 47 DkLg-16 nail lengths.

to 8.30 cm (1¼ to 3¼ inches). They were recovered from 18 cm to 76 cm. The longer specimens are sheeting nails, the short ones are flooring nails, and all were machine-cut. Both categories date to post-1840 (Nelson 1968).

Sub-type 3.4. Four incomplete nails with square shafts were recovered between 26 cm and 124 cm, with three coming from a depth of c. 50 cm. All are probably machine cut.

Sub-type 3.5. Nine incomplete nails displaying rectangular shafts were found from 20 cm to 103 cm, with the bulk coming to light within the upper 50 cm. One had an early machine-made head, which dates between 1815 and the late 1830s (Nelson 1968:7).

Type 4.0 One-side spur

The one-side spur nail had a spur-like feature at the top of the shaft extending over the body of the specimen on one side (Figs. 45d and 46d).

There was one complete specimen that measured 4.0 cm long (1½ inches). It was machine-cut and rectangular in cross-section, with a faceted, tapering point. It was found at a depth of 37 cm.

Type 7.0 Rectangular

There were a total of seven nails in this category, four of which were complete. These were all rectangular in cross-section and had two-sided tapering points (Figs. 46g and 47g). They ranged in length from 4.0 cm to 10.2 cm (1½ to 4 inches long). Depth of recovery ranged from 15 cm to 124 cm. The longer nails were recovered at the top of the feature whereas the shorter ones were obtained at the bottom. They were all machine-cut and were cut from opposite sides. The longer nails were for sheeting; the smaller ones were for casing.

The three incomplete nails all had rectangular cross-sections and were recovered at a depth of between 56 cm and 100 cm. These too were machine-cut.

Type 8.0 Unanalyzable

These were nails that were unidentifiable due to corrosion or use (Fig. 45h). There were three such nails, two of which were complete. Both were square with a two-sided tapering point. Their lengths ranged from 3.6 cm to 6.0 cm (1½ to 2¼ inches). The longer nail was recovered at a depth of 7 cm, the shorter one at a depth of 103 cm. Both were machine-cut.

Type 9.0 Horse shoe

In side view, this type had a pentagonal head (Figs. 45i, 46h) and, as the type name suggests, were likely used as horse or ox shoe nails.

One complete nail was recovered. It was 5.7 cm long (2¼ inches), machine-cut, rectangular in cross-section with a two-sided tapered point. The nail was recovered from a depth of 117 cm.

Type 12.0 Headless

Headless nails are mid-sections or tip fragments (Fig. 46j). There were 13 of these, and they are divided into two sub-types based on presence or absence of the tip.

Sub-type 12.1 Tip present. There were five examples that retained tips; four of these had two-sided tapering points and one had a four-sided taper. Those having two-sided tapered points were recovered from depths of 15 cm to 46 cm deep. The four-sided tapered specimen was from 29 cm and was hand-wrought. The other four were machine-cut.

Sub-type 12.2 Tip absent. Eight nails were represented by shaft fragments; four were rectangular, three were square, and one was round. Area of recovery ranged from 17 cm to 103 cm in depth.

Type 13.0 Clasp

In the clasp-head type, the head sloped obliquely towards the nail shank on both sides (Figs. 45k and 46k). This allowed the nail to cut into the surface of the material into which it was driven (Sloane 1964:92).

There were four of these nails, two of which were complete. The complete nails were 5.2 cm and 6.5 cm (2 inches and 2½ inches) long and had a square cross-section with a flared and flattened tip. The longer nail was from 31 cm, and the shorter one was from 111 cm. All were hand wrought with square cross-sections. One incomplete specimen was recovered from the surface; the other was from 30 cm.

Feature 2

Type 1.0 Rose

There was a total of eight nails of this type from this feature, two of which were complete. The complete specimens were 6.32 cm and 8.18 cm (2½ inches and 3¼ inches) long, and were square in cross-section with either a two-sided or four-sided tapered point. The four-sided nail was recovered from a depth of 66 cm; the two-sided nail was from the surface. Both were hand forged and were probably framing nails.

Four of the incomplete nails had square cross-sections; the remaining two were rectangular. These latter specimens were recovered between 5 cm and 16 cm deep and were machine-cut. The four square nails were recovered from between 10 cm and 50 cm. Due to their poorly preserved condition it was difficult to discern whether they were hand-wrought or machine-cut.

Type 2.0 Round

Two complete nails measuring 1.93 cm and 2.70 cm (¾ inch and 1 inch) in length were recovered. They were square in cross-section, with one having a four-sided tapering point and the other a two-sided tapering point. The former was recovered at 24 cm and was probably a hand-forged lathing nail. The latter was recovered at a depth of 10 cm and was a wire nail.

Type 3.0 Square

There were 16 of these and eight were complete. The complete nails were sub-divided into three sub-types based on shaft cross-section.

Sub-type 3.1. Two nails had a square cross-section and a two-sided tapering point. They ranged in length from 6.4 cm to 7.2 cm (2½ to 3 inches). The larger nail was found 50 cm below the surface and the smaller one at a depth of 58 cm. Both were machine-cut.

Sub-type 3.3. This sub-type had a rectangular cross-section and a two-sided tapering point. There were six of these with lengths ranging from 1.8 cm to 7.6 cm (0.7 to 3 inches). These were recovered at depths ranging from 17 cm to 60 cm and all were machine-cut.

Sub-type 3.4. There were six square-head and shaft fragments recovered at depths between 20 cm and 68 cm. All were machine-cut.

Sub-type 3.5. This sample consisted of ten rectangular shaft fragments with square heads. These were obtained at depths of between 10 cm and 61 cm. All were machine cut.

Type 7.0 Rectangular

There were nine of this type, one of which was complete. It was 7.6 cm (3 inches) long, was recovered at the 15 cm level, and was machine-cut. It was probably a sheeting nail.

Six of the incomplete nails were rectangular in cross-section; the other two were square. The square nails were recovered at 29 cm. The rectangular nails were recovered from 10 cm to 62 cm. Seven of the incomplete specimens were machine-cut and one was hand-wrought.

Type 8.0 Unanalyzable

There were four nails of this category, one of which was complete. It was found at the 15 cm level and was 4.3 cm (1 3/4 inches long. It was tapered on four sides and was hand-wrought.

Of the incomplete nails, two were found at 4 cm; the other two were come upon at 68 cm. Two displayed square or rectangular cross-sections and all were machine-cut.

Type 9.0 Horse shoe

A single, incomplete nail had a rectangular cross-section. It was recovered at 20 cm and was probably hand-forged.

Type 11.0 90^o blunt

There was one incomplete specimen, found at 15 cm. The head was L-shaped and the tip portion blunt (Fig. 45j, 46i). It was either a "sprig" or a "brad" and was used as a trim or flooring nail (Nelson 1968:6), and was probably hand-wrought.

Type 12.0 Headless

There was a total of 23 nails of this type. They were subdivided on the basis of presence or absence of tip form.

Sub-type 12.1. There were ten that retained their tips; eight had a two-sided tapering point, one had a four-sided taper, and one was a screw point. This latter tip form was round in cross-section and was recovered at 7 cm. Of those fragments having two-sided tapering points, four were rectangular in cross-section and were recovered between 20 and 75 cm. Three had square cross-sections and were recovered between 44 cm and 71 cm. One, having a four-sided tapering point, was recovered at 61 cm and was square in cross-section.

Sub-type 12.2. Thirteen shank fragments were found in Feature 2. Ten were rectangular in cross-section and recovered from between the surface and 78 cm. The other three had square cross-sections and were found between 3 cm and 25 cm. All were machine-cut.

Type 13.0 Clasp

Five nails of this type were recovered, one of which was complete. It was 6.15 cm long (2¼ inches) and recovered at 14 cm. The shaft was square and the tip four-sided and tapered.

Three of the incomplete nails were machine-cut with a rectangular cross-section, while the fourth was hand-wrought and square. The machine-cut nails occurred at depths of between 20 and 46 cm. The hand-wrought nail was recovered at 7 cm.

Feature 3

Type 1.0 Rose

There were four nails of this type, two of which were complete. One was 3.9 cm long (1½ inches) and had a square cross-section with a four-sided tapering point. It was recovered at 41 cm, and was hand-wrought. The other nail was 9.1 cm long (3½ inches) and rectangular, with a two-sided tapering point. It was machine-cut.

The incomplete nails were rectangular and were recovered from the surface and at 10 cm. Both were machine-cut from opposite sides and were probably trim or casing nails.

Type 3.0 Square

There were 11 square nails, six of which were complete. The complete nails were divided into sub-types on the basis of cross-section and tip form and the incomplete ones on the basis of cross-section.

Sub-type 3.1. There were two of this sub-type, measuring 3.0 cm and 3.2 cm (1 to 1¼ inches respectively). The smaller nail was recovered at 18 cm, the larger at 10 cm. Both were machine-cut and appear to be finishing nails.

Sub-type 3.3. There were four nails of this sub-type recovered. Their length ranged from 3.3 cm to 5.3 cm (1¼ to 2 inches). They were recovered at depths of from 2 to 38 cm. All were machine-cut. The smaller nails were probably finishing nails; the larger were likely trim nails.

Sub-type 3.4. This incomplete nail was recovered at 20 cm and was machine-cut.

Sub-type 3.5. Three incomplete nails having rectangular shafts were recovered between 24 and 77 cm. All three were machine-cut.

Type 4.0 One-side spur

This incomplete nail had a square cross-section and was recovered at 55 cm. It was machine-cut.

Type 5.0 Two-side spur

This head type had flattened facets on both sides of the nail shaft (Figs. 45e, 46e). The one complete specimen was 4.5 cm long (1 3/4 inches). It was square in cross-section with a four-sided tapering tip, and was hand-forged.

Type 7.0 Rectangular

Seven rectangular-headed nails were recovered, and three of them are complete. All specimens were divided into two sub-types on the basis of cross-section.

Sub-type 7.1. This nail had a two-sided tapering point. It was 5.7 cm (2¼ inches) long and was recovered at 5 cm. It was machine-cut.

Sub-type 7.2. The two nails of this type had a two-sided tapering point. They ranged in length from 3.8 to 4.5 cm (1½ to 1 3/4 inches). Both were machine-cut. The longer nail likely functioned as a trim nail, and the shorter one as a finishing nail.

Sub-type 7.3. A single, incomplete square specimen was recovered at 15 cm. It was machine-cut.

Sub-type 7.4. Three incomplete, rectangular shafted fragments were recovered -- one from the surface, one from 18 cm, the other from an unknown depth from a baulk. All were machine-cut.

Type 12.0 Headless

The 11 examples of this group are divided on the basis of presence or absence of tips.

Sub-type 12.1. Six had tips; two are four-sided taper and four are two-sided taper. These were recovered from the surface to a depth of 38 cm. Specimens having four-sided points are hand-wrought, as is the one having a two-side tapered tip. The remainder were machine-cut.

Sub-type 12.2. Nine nails are shaft fragments -- six are square and three are rectangular. All were recovered from between 8 and 80 cm.

Type 13.0 Clasp

A single, incomplete nail recovered from 15 cm was machine-cut.

Surface Recoveries, Shovel Pits and Test Excavations

Type 1.0 Rose

There were ten of these recovered, four of which were complete. These ranged in size from 3.5 to 7.7 cm (1¼ to 3 inches). Two have square cross-sections and have a four-sided tapering point. One was square in cross-section with a two-sided tapered point. The square nails were hand-wrought. The fourth complete nail has a rectangular shank and a two-sided tapered point. It was machine-cut.

Of the six incomplete nails, four have square cross-sections and are probably hand-wrought. The remainder are rectangular and were machine-cut. The shape of the machine-cut nails suggested that they were "early machine cut" and the heads were formed by hammering (Nelson 1968:6).

Type 2.0 Round

There were four recovered, two of them complete. They are 5.3 and 6.5 cm long (2 and 2½ inches). Both are modern wire nails, as are the incomplete specimens.

Type 3.0 Square

There are 13 square-headed nails, five of which are complete. All nails are sub-divided on the basis of shaft form.

Sub-type 3.1. One nail has a two-sided tapering point. It is 3.0 cm (1 inch) long and was machine cut. It probably was a finishing or trim nail.

Sub-type 3.3. Four machine-cut nails have two-sided tapering points. Lengths range from 3.30 to 6.50 cm (1¼ to 2½ inches). The smaller specimens were probably finishing nails while the larger ones may have been sheeting nails.

Sub-type 3.4. This was an incomplete, square shaft and likely from a trim nail.

Sub-type 3.5. There were seven rectangular shank fragments. All were machine-cut and probably functioned as sheeting nails.

Type 4.0 One-sided spur

There were three of this type, one of them complete. The complete one is 6.3 cm (2½ inches) long, was rectangular in cross-section, and had a two-sided tapered point. It appears to be an early machine-cut nail.

One of the incomplete nails has a rectangular shaft, was machine-cut and may be a trim nail. The other incomplete nail had a square profile and was either hand-wrought or "early machine-cut".

Type 6.0 Plano-convex

The head of this screw is round, has a flat top and slopes to a thick body (Figs. 45f, 46f). It is 3.8 cm (1½ inches) long, has a flat tip, and is probably an early machine-made screw.

Type 7.0 Rectangular

Three nails were recovered, two of which were complete and measured 5.4 cm (2 inches) and 7.8 cm (3 inches) long. The shorter nail was rectangular and had a two-sided tapering point. It is an unused hand-forged horse shoe nail. The longer nail was square and has a two-sided tapered point. Its morphology suggests it was a machine-cut sheeting nail. The incomplete nail was rectangular in cross-section and was probably a hand-wrought horse shoe nail. The fact that it is incomplete suggests that it had been used.

Type 8.0 Unanalyzable

The one unanalyzable nail has a square cross-section and a four-sided tapering point. It is 3.6 cm (1½ inches) long and was hand-forged.

Type 11.0 90° Blunt

The one incomplete specimen has a rectangular shaft.

Type 12.0 Headless

There are 20 headless nails and these are divided on the basis of presence or absence of the tip.

Sub-type 12.1. Three fragments have a four-sided tapering point. Two have square shafts and the third is rectangular. All were hand-wrought. Nine fragments have two-side tapering points. Six have square shafts and the remainder are rectangular. Based on morphology, one of the square fragments was probably a trim or finishing nail; and one of the rectangular specimens appears to be early machine-cut. The rest of the sample are modern machine-cut.

Sub-type 12.2. Eight were shank fragments, five are square and three are rectangular.

Type 13.0 Clasp

An incomplete nail has a square cross-section and was probably hand-wrought.

Discussion

Based on the nail chronology established by Nelson (1968), it is possible to make an estimate of when building construction occurred at the site. Over 80% of the sample from DkLg-16 were machine-cut nails. The earliest date for this type is 1790 (Nelson 1968:8). Most of the nails from the Garden Site were cut from opposite sides and had machine-made heads. The temporal span for this type is from the late 1830s to the present (Nelson 1968:8). One of the first references to cut nails in the Red River settlement can be found in a newspaper advertisement in the July 28, 1860, issue of the Nor'Wester where this type of nail is referred to as "fresh arrivals". Advertisements prior to this merely list nails and do not specify if they were hand-wrought or cut. It is possible, then, that machine-cut nails were not introduced into the area until the early 1860s. This would indicate that most of the construction at the site was after this time.

Some statements as to construction techniques can be made on the basis of the length of nails recovered (Fig. 47). The most frequent sizes recovered were 3/4-inch, 1½-inch and 2½-inch. There were none over 4½ inches long. This would suggest that most of the buildings at the site were of log rather than frame construction. The presence of small finishing, trim and casing nails suggests that interior finishing was done, most likely in the residence.

Tables 22 and 23 show the number and types of nails recovered in the three features. In terms of total amounts, Feature 2 had the most, with 38% of the total sample. It also contained the largest number of complete nails and nails having only heads and tips. When percentages of complete nails are compared, Feature 1 and 2 are similar; Feature 3 had less. The same proportions are found to occur among those nails without heads. Feature 2 had twice the number of nail fragments with heads than any other feature. It is not known what caused the nails to break. It is possible, however, that they were clenched and were broken as they were pulled from the wood. If this is the case, the second feature may have been used as a refuse repository during a time when building lumber was being salvaged and nails were removed. The feature could also have been used when buildings were being dismantled, with the nails being drawn and deposited in the pit.

The distribution of nail types by feature (Table 23) was random. Only the one-sided spur nail type showed a concentration and this occurred in Feature 2. Based on nail type, there is little difference among the features.

Because machine-cut nails have a long temporal occurrence, and because they are relatively evenly distributed among the features, it is impossible, using these data, to determine the relative temporal sequence of the features.

Chinking

This is the clay material that was used to fill the spaces between the logs in log-building construction. It may be applied to

TABLE 22

NAIL DISTRIBUTION BY FEATURE

	FEATURE 1		FEATURE 2		FEATURE 3		SURFACE AND TESTS		TOTAL
	n	%	n	%	n	%	n	%	
Complete	22	29	27	35	12	16	16	21	77
Head fragments	42	25	69	40	24	14	36	21	171
Shaft fragments	28	25	37	33	18	16	28	25	111

TABLE 23

DISTRIBUTION OF NAIL TYPES BY FEATURE

TYPE	FEATURE 1	FEATURE 2	FEATURE 3	SURFACE AND TESTS	TOTAL
1.0 Rose	4	8	4	10	26
2.0 Round	1	2	0	4	7
3.0 Square	19	24	10	13	66
4.0 1-side spur	1	14	1	3	19
5.0 2-side spur	0	0	1	0	1
6.0 Plano-convex	1	0	0	1	2
7.0 Rectangular	7	9	7	3	26
8.0 Unanalyzable	3	4	0	1	8
9.0 Horse shoe	1	1	0	0	2
10.0 90° pointed	0	0	0	0	0
11.0 90° blunt	0	1	0	1	2
12.0 Headless	13	23	15	19	70
13.0 Clasp	4	5	1	1	11
TOTAL	54	91	39	56	240
% OF TOTAL	23	38	16	23	

both exterior and interior walls. The material was normally made from riverine silt and was mixed with straw or grass to give consistency. The mixture was usually daubed on and the excess planed off. Frequently, the walls were whitewahsed with a mixture of lime and water (Tremauden 1935:52).

The analysis of the chinking recovered from the Garden Site focused on two aspects: composition and the impressions left on the chinking by the building materials.

The total chinking sample weighed 35 kilograms (77 pounds). Only 0.5 kilograms of this was from Feature 1 and most was recovered from the upper levels. Some pieces were encountered as deep as 125 cm but were very small, measuring less than 25 mm across. Few pieces from this feature were large enough to be examined. All contained grass imprints and a few appear to have been whitewashed.

Feature 2 had chinking strewn throughout its strata with several large pieces recovered. Several of the fragments displayed evidence of having been fired and this may have resulted from a structure burning or, more likely, the chinking was deposited with smouldering trash. The samples from this feature contained plant stock and seed hull impressions (Fig. 48). Small, lanceolate leaf impressions suggestive of willow leaves were also observed (Fig. 49). The seeds were suggestive of cereal grains such as oats or barley. Several pieces of chinking displayed the negative impression of wood logs with the bark removed and the wood weathered.

A number of different log cross-sections were observed. One large chinking fragment indicated that one log was squared and the other

FIGURE 48 Chinking found in Feature 2 showing seed hull impressions.

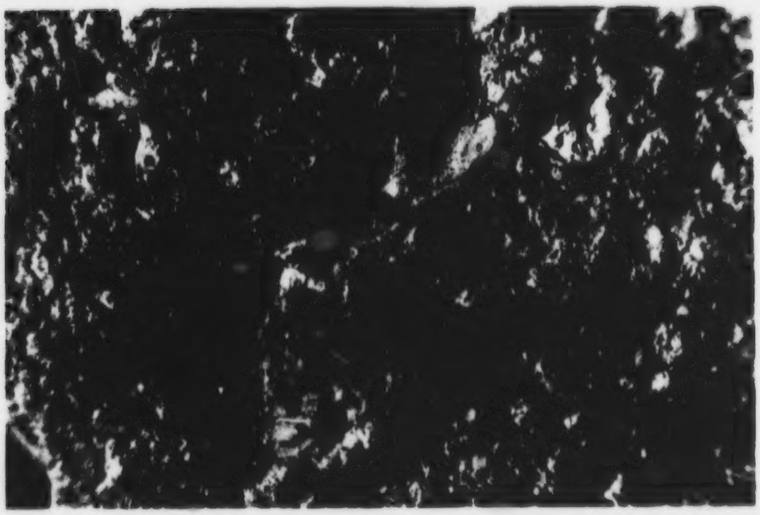


FIGURE 49 Chinking found in Feature 2 showing leaf impressions.

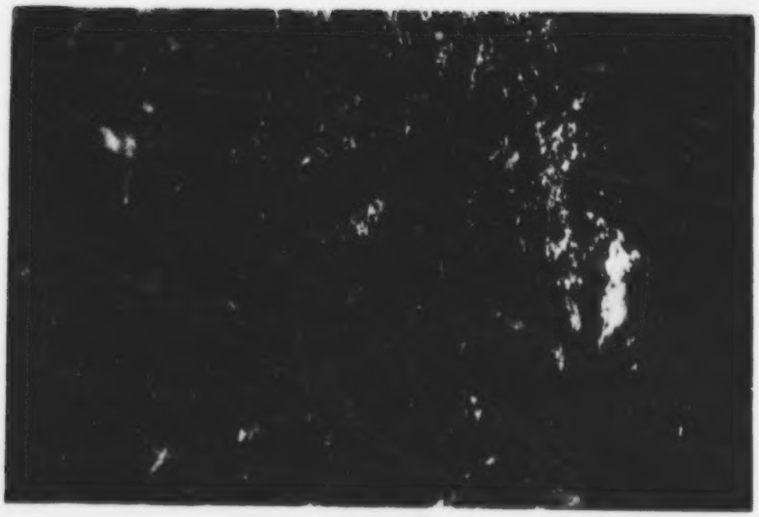


FIGURE 50 Chinking found in Feature 2 showing grass or cereal grain impressions.

rounded (Fig. 51b). Another piece showed that one log was thicker than the adjacent one (Fig. 51a). Other fragments were from between squared logs. Several of the larger pieces were whitewahsed on one side (Fig. 52).

A total sample of chinking in Feature 2 weighed 33.5 kilograms.

Feature 3 had a total of 1.5 kilograms of chinking and these were recovered in the upper levels of the feature. The chinking was similar to that of the other features. A large quantity was fired a red-orange colour. The whitewash displayed on several samples appeared to be applied with a coarse brush.

Summary

The analysis of the chinking fragments produced a variety of information. The presence of straw within the matrices of several fragments not only suggested how the chinking was manufactured, but also indicated that cereal grains, probably barley, were being grown in close proximity to the site. Impressions on the clay showed that several kinds of logs, square and round, plus old logs were being used and reused. This variety of log shapes suggests that several buildings may have been standing on the site at one time, or that logs from several older buildings had been reutilized. In addition, at least one of the structures was whitewashed.

Miscellaneous Metal

Metal artifacts in this category include: staples, wire, barrel hoop fragments, files and other hardware.

FIGURE 51 Cross section of chinking fragments
(a) chinking from between logs of different size
(b) chinking from between round and square logs.

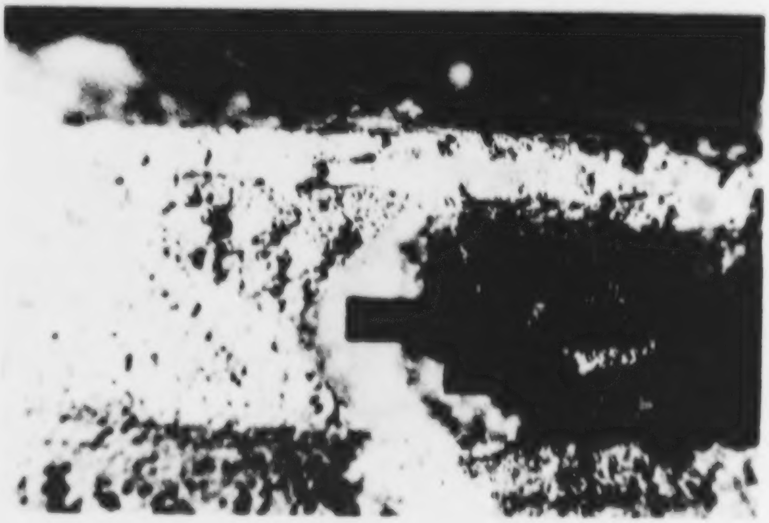


FIGURE 52 Chinking fragment with layer of whitewash.

Staples

Ten fencing staples were recovered (Fig. 53c), four of which came from Feature 2 from 5 cm to 20 cm deep. Five were recovered on the surface and one was from a shovel pit. They were approximately 0.45 cm in diameter and 3.50 cm long. Eight small paper staples were found on the surface.

Wire

Eighteen fragments of wire were recovered, with diameters ranging from 0.19 to 0.33 cm. Thirteen fragments were found in shovel pits between depths of 5 cm and 25 cm, and five were found on the surface. Two pieces of barbed wire were also recovered; both were from the surface and measured about 0.22 cm in diameter with 1-cm-long barbs.

Barrel Hoop Fragments

Seven pieces of barrel hoop were recovered, of which four were found concentrated in Feature 1 at 110 cm. These fragments were approximately 2.60 cm wide and 0.30 cm thick. Of the three remaining fragments, two displayed nail holes. One, found at a depth of 75 to 80 cm in Feature 2, measured 3.10 cm wide and 0.25 cm thick with two round nail holes 0.32 cm in diameter. The other fragment was 2.72 cm wide, 0.22 cm thick and contained square nail holes (Fig. 54). It was from Feature 2 at a depth of 25 cm. The third fragment contained rivets (Fig. 54), was 2.50 cm wide and 0.21 cm thick, and was a surface recovery.

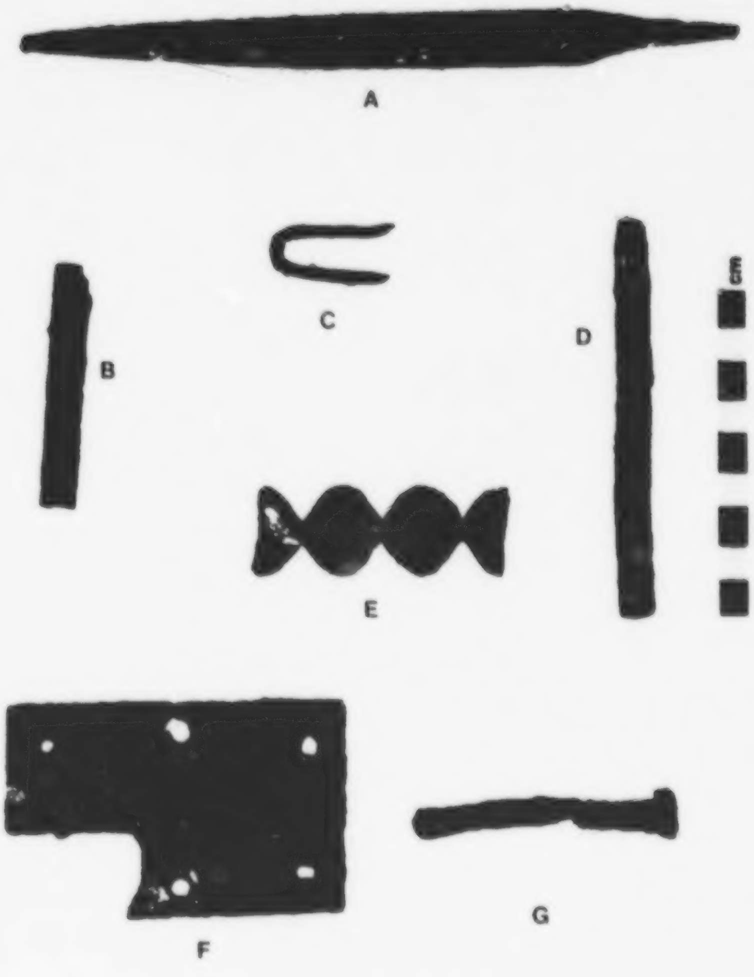


FIGURE 53 Metal artifacts
(a) Three-sided file
(b) Bolt
(c) Fencing staple
(d) Half-round file fragment
(e) Auger fragment
(f) Hinge
(g) Bolt

FIGURE 54 Barrel hoop fragments.

Files

Two metal files were found in Feature 2, one from 35 cm, the other at 65 cm. The first was three-sided with a lanceolate shape, was 19.9 cm long, displayed a 3.75-cm stem, and measured 1.40 cm wide on each side (Fig. 53a). The second specimen was from 65 cm and was a fragment from a half-round file (Fig. 53a). It was 6.5 cm long, 0.8 cm wide and 0.5 cm thick.

Other Hardware

A broken auger bit was found on the surface. It was approximately 6.55 cm long, 2.20 cm in diameter, and 0.40 cm thick (Fig. 53e).

A rivet with a diamond-shaped copper head was found at a depth of 5 cm to 10 cm in a shovel pit. This may have been a decorative rivet from a gun stock.

A broken metal hinge was recovered from Feature 2 at 30 cm deep. It had three bolt holes on each side and measured 9.0 cm by 5.7 cm by 0.4 cm (Fig. 53f). It is cast and likely dates to the latter part of the nineteenth century.

In Feature 1, a large bolt with a square head was obtained at 60 cm (Fig. 53g). The head measures 1.29 cm square and the bolt measured 7.27 cm long and 0.82 cm in diameter. This specimen appeared to be threaded.

A metal bolt or pin was found in Feature 1 at a depth of 120 cm. It was 10.75 cm long and 0.90 cm in diameter (Fig. 53b).

A lead washer (likely a lock washer), 1.50 cm in diameter with a 0.5 cm opening, was found on the surface.

A metal sheet (tin- or zinc-plated) measuring 42.3 cm by 38.5 cm by 0.1 cm was also found on the surface.

A rivet or bolt head, 0.90 cm in diameter, was recovered from 20 cm deep in a shovel pit.

A piece of solder was found in Feature 2 at a depth of 35 cm. It was approximately 6.0 cm long.

A flat, oval-shaped piece of lead was found in Feature 2, 40 cm deep. This may be a flattened musket ball (Fig. 55d).

Numerous pieces of metal were found whose form and function could not be determined. This includes a V-shaped nail or bolt-like object with two washers at one end (Fig. 55f). It was recovered in Feature 1 between 5 cm and 10 cm. The object was 0.58 cm in diameter and the legs measured 6.0 cm and 4.9 cm. The washers were 1.38 cm and 1.30 cm in diameter.

Two objects, similar in form, were found and are probably harness parts (Fig. 55e). One was from the surface while the other was found 50 cm deep in Feature 2. The objects articulated to form a W-shaped object measuring approximately 8.82 cm wide and 9.62 cm long. Both pieces have protrusions on the distal ends and the shafts taper from 0.40 cm to 0.85 cm in diameter.

A large metal object, possibly a handle or a piece from a stove, was found at 20 cm to 25 cm deep in Feature 3 (Fig. 55c).

A bent metal projectile point (?) was found on the surface (Fig. 55b). It measured 0.13 cm thick, 4.14 cm along the base and 4.59 cm along the other two edges.

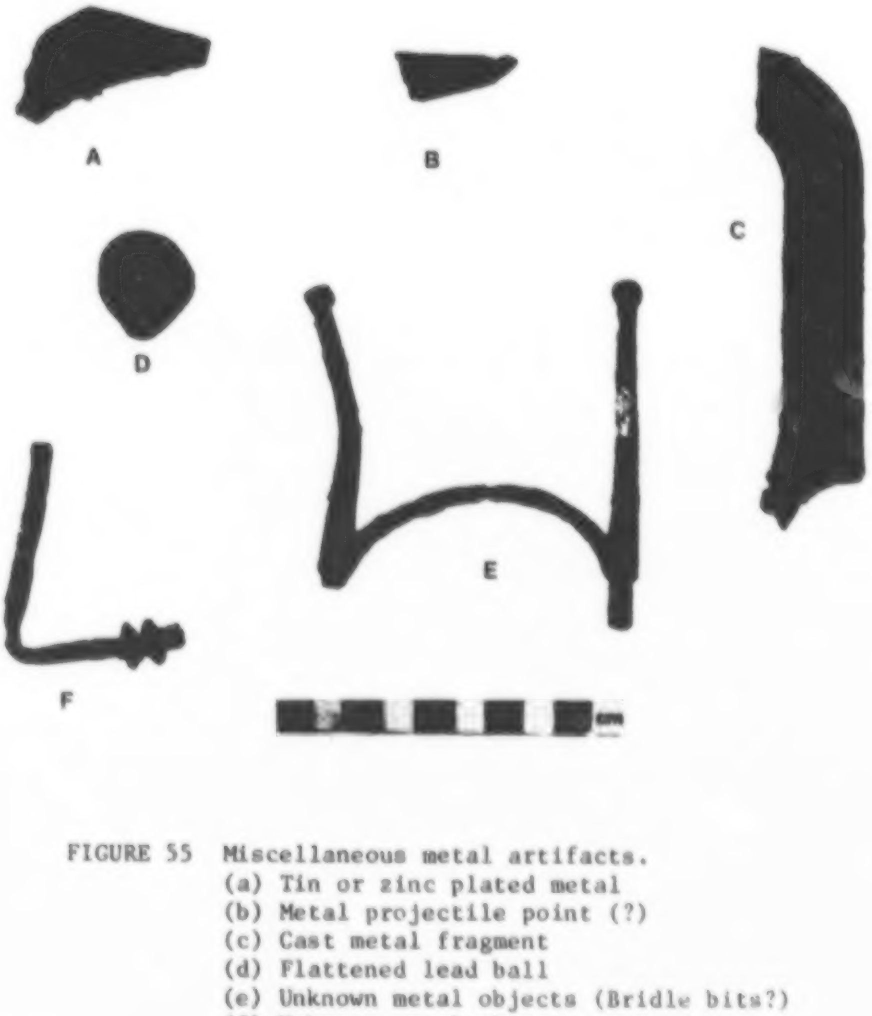


FIGURE 55 Miscellaneous metal artifacts.
(a) Tin or zinc plated metal
(b) Metal projectile point (?)
(c) Cast metal fragment
(d) Flattened lead ball
(e) Unknown metal objects (Bridle bits?)
(f) Unknown metal object

A copper fragment was found in Feature 2, from 55 cm to 60 cm deep. It was a slightly flattened section of copper, approximately 0.20 cm in diameter and 1.60 cm long. It may be a portion of a Jew's harp.

Many fragments of unidentifiable metal were recovered: 27 fragments in Feature 1, 25 in Feature 2, 38 in Feature 3, and 125 on the surface.

Window Glass

A total of 96 window glass fragments were collected, and several portions of panes were reconstructed. Window glass was typed on the basis of colour, thickness and patination.

Type 1.0

Of the eight fragments recovered, three articulated. This type was the thickest window glass recovered (0.23 cm). It had some patination and a green tint. Two fragments were obtained from the surface and the remaining six came from 0 to 20 cm in shovel pits. This glass dates from the late nineteenth century (Miller 1960).

Type 1.1

This is the same colour as Type 1.0. It was patinated and 0.18 cm thick. Twenty-one fragments were recovered, none of which articulated. Ten fragments came from shovel pits, three were found in Feature 3 at depths of 15 cm to 30 cm deep, four came from Feature 2 at 20 to 80 cm deep and four more came from the surface.

Type 2.0

This glass has a lighter green tint than Type 1, was slightly patinated, and was 0.21 cm thick. Fifty fragments were recovered from which seven pieces were joined (Fig. 56). This reconstructed fragment retains straight milled or cut edges on the bottom and left sides. One large, reconstructed fragment displayed a crudely etched animal figure (Fig. 57). Two fragments were found in Feature 1, 85 cm to 110 cm deep; 24 fragments were from Feature 2, 20 cm to 80 cm deep; seven were from Feature 3, 50 cm to 60 cm deep; three were recovered in shovel pits; and 14 were from the surface.

Type 3.0

This was clear, 0.17-cm-thick glass with some patination. Ten fragments were recovered -- two from the surface, two from Feature 1 between 10 and 25 cm, one from Feature 2 at a depth of 6 cm; and five were from shovel pits.

Type 4.0

Twenty-eight fragments were recovered. This was clear glass with very little or no patination. Nine fragments were found on the surface, ten came from Feature 1, two were from Feature 2 from 10 cm to 30 cm, and four were obtained in Feature 3 at a depth of 5 cm.

Type 5.0

Five clear fragments were recovered. They were 0.15 cm thick and all had fractured into small rectangular pieces. Two

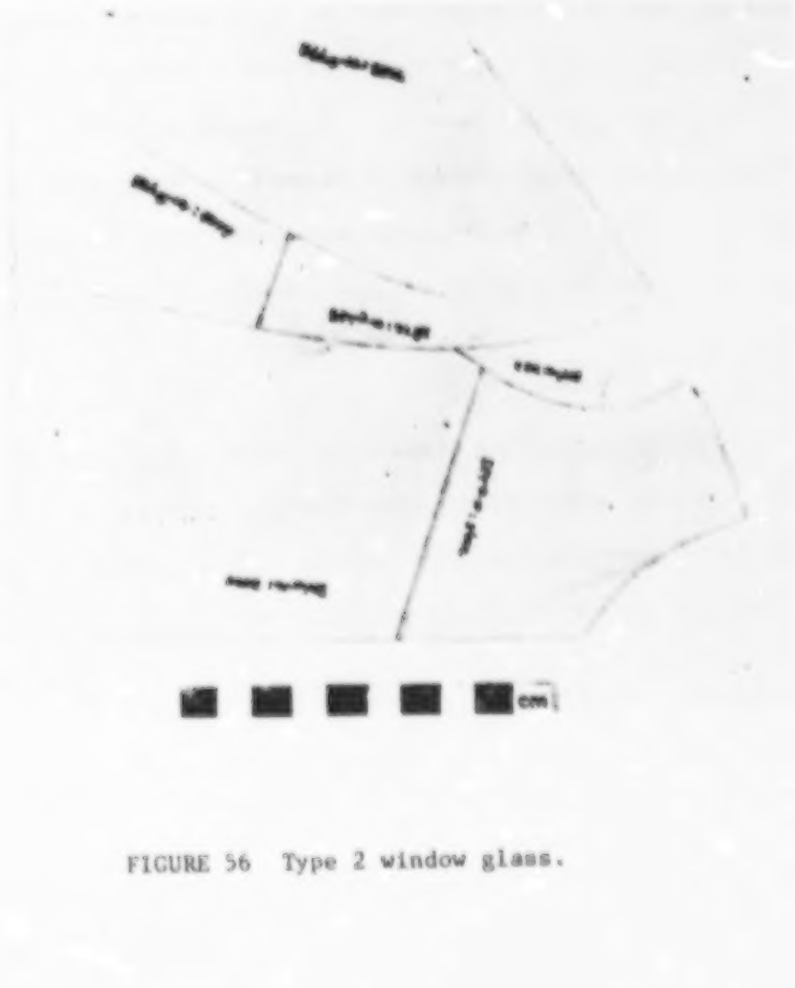


FIGURE 56 Type 2 window glass.

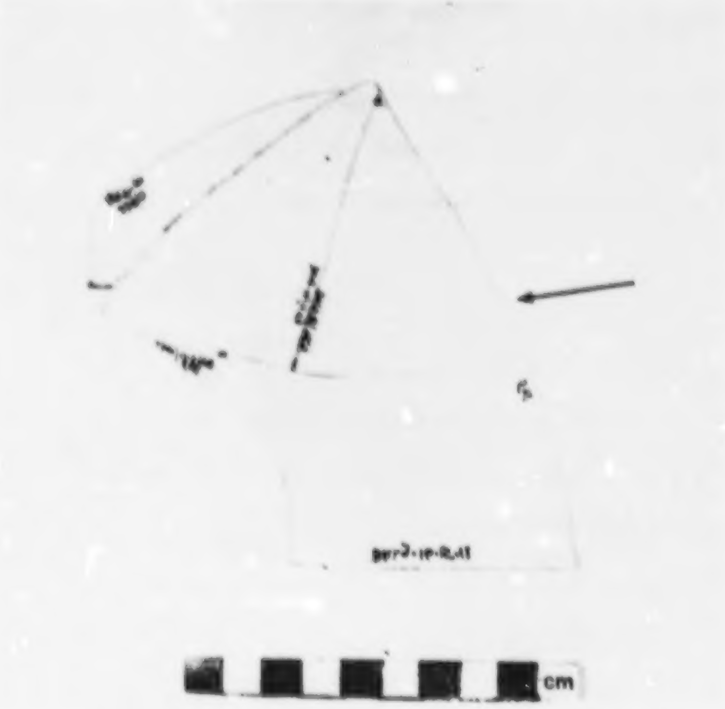


FIGURE 57 Type 2 window glass. (Note animal figure etched on right side of fragment.)

fragments were from the surface, two were from shovel pits, and one was found at a depth of 20 cm in Feature 2.

Type 6.0

This was frosted glass, of which two fragments were recovered, both from separate panes. One fragment was 0.19 cm thick, green-tinged, had a small degree of patination, and was found in Feature 3 at a depth of 10 cm. The second fragment was clear, with some patination, was 0.17 cm thick and was also found in Feature 3.

Household Artifacts

Ceramics

The ceramics were divided into five types based on ware and decoration; 1.0 Porcelain, 2.0 Stoneware, 3.0 and 4.0 Earthenware, and 5.0 Pearlware. The earthenware was subdivided into transfer print and plain white thus accounting for the separate category.

The purpose of the ceramic analysis was to obtain a relative date for the occupation of the site, and to observe any differences or similarities between the three features.

Type 1.0 Porcelain

Sub-type 1.1 Blue and Gold

One large rim sherd with a blue floral (?) design above a gold floral motif was recovered (Fig. 58a). The glaze was transparent and the body of the sherd white. It was probably from a plate. The sherd was recovered from the bottom of Feature 2.

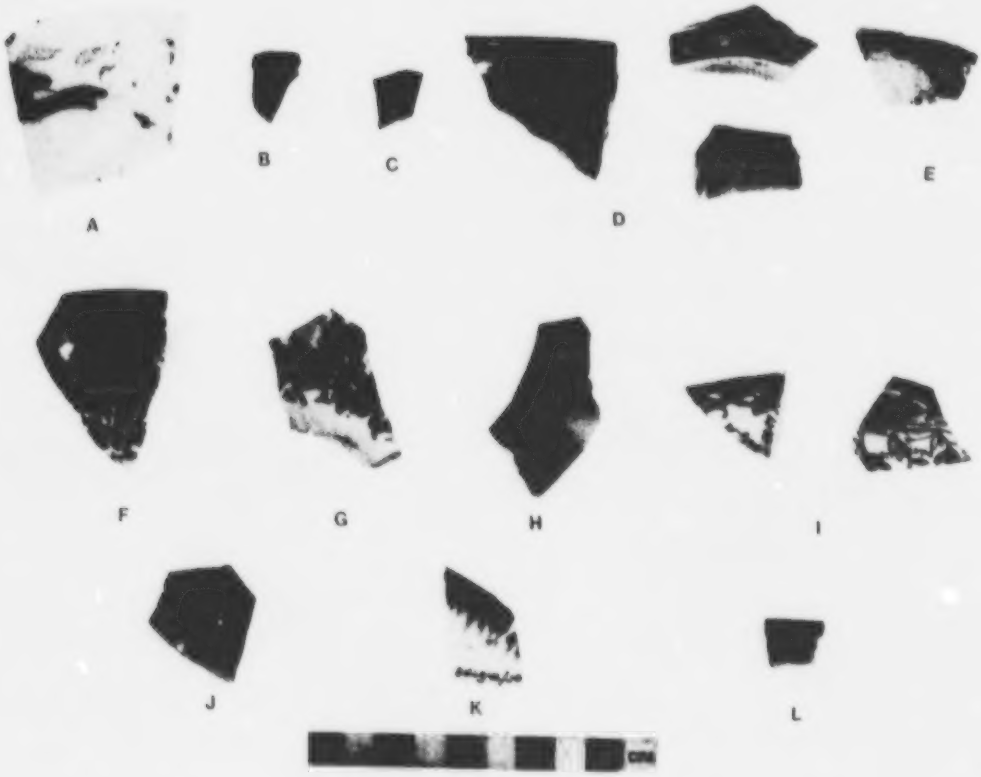


FIGURE 58 Ceramic types.
(a) Type 1.1 Blue and gold
(b) Type 2.2 Brown with transparent glaze
(c) Type 2.3 Salt glazed
(d) Type 3.1 Blue Ceres
(e) Type 3.2 Tuscan
(f) Type 3.3 Sponged exterior
(g) Type 3.3.2 Sponged interior
(h) Type 3.4 Flower vase
(i) Type 3.5 Bramble
(j) Type 3.6 Watteau
(k) Type 3.7 Edge decoration
(l) Type 3.8 B 700

Type 2.0 Stoneware

Sub-type 2.1 Handle

A small handle (?) with a brown body and a translucent glaze was found. It is probably from a small bowl and was recovered at 80 cm in Feature 2.

Sub-type 2.2 Brown with Transparent Glaze

Two sherds were found that were extremely thin and appeared to be from a small vessel, such as a ginger bottle. One was a rim sherd and displayed a thread-like ridge around its circumference which was suggestive of a threaded lip (Fig. 58b). They were recovered in the upper levels of Feature 3.

Sub-type 2.3 Salt Glazed

Four sherds of coarse stoneware were obtained that had a thick salt glaze with the glaze on the exterior of the sherds being darker than that of the interiors (Fig. 58c). The bodies of two of the sherds were a red-orange. The vessel type of these is unknown, but it may have been a jar. They were recovered in the upper levels of Feature 2 and one sherd was from a depth of 45 cm in Feature 3.

Type 3.0 Transfer Print Earthenware

Sub-type 3.1 Blue Ceres

Twelve sherds with a blue body and a transparent glaze were recovered. They displayed a raised relief design; however, none of the sherds was large enough, nor was the sample of sufficient size, to discern what it was the design represented (Fig. 58d). It is similar to the "Ceres" or "Wheat" design documented by Sussman (1979a). She describes the body colour as being greyish white covered with a blue-tinged glaze (Sussman 1979a:12). The sherds from the Garden Site were of a blue-grey tinge and, since the design on the sherds was not complete, this sherd type could not be accurately identified. If this is the "Ceres" pattern, then it was possibly manufactured by Robert Cochran and Company during the latter part of the nineteenth century (Sussman 1979a:13). The vessel type is probably a bowl. Sherds of this type were recovered from the surface, in the middle and lower levels of Feature 1, and in the upper portions of Feature 3.

Sub-type 3.2 Tuscan

One sherd was found, the exterior of which displayed three design elements: (1) a double row of small blue squares with a dark blue dot in the centre of each; and (2) a thin blue horizontal line that created a border between the above design and (3) a horizontal band of interlocked, long-stemmed flowers (Fig. 58e). These extended linearly across the sherd. This design is the "Tuscan" pattern which was manufactured by W.T. Copeland from 1852 to the 1900s (Sussman 1979a:89). Given the extreme concavity of the sherd, it is probably from a cup or small bowl. This specimen was recovered from the surface.

Sub-type 3.3.1 Sponged Exterior

The design consisted of blue "speckles" which are concentrated at the lip of the rim sherds and spaced further down the sherds (Fig. 58f). This corresponds to Sussman's pattern 85 or the "sponged" decoration whose manufacturer and dates of use are unknown (Sussman 1979a:114). Seven of the sherds appear to have been heated enough to remove the glaze. The sherds are probably from a cup. Six sherds were recovered on the surface, two came from the upper levels of Feature 1, two are from the upper and middle of Feature 2.

Sub-type 3.3.2 Sponged Interior

Ten sherds with a similar interior design to that of the above were found. The design consisted of one element, a blue vertical line extending toward the middle of the sherd with a white background and a white border (Fig. 58g). The vessel was probably a saucer. Five sherds were found on the surface and in the bottom of Feature 2; the rest were surface recoveries.

Sub-type 3.4 Flower Vase

The rim sherds displayed two elements of design: (1) a bordered rim marked by a corded design above (2) a dark blue floral motif, all on a blue-tinged background (Fig. 58h). This is the "Flower Vase" which, based on the trademark, Sussman dates between 1847-67 (Sussman 1979a:50). However, it has also been dated at 1828 to the twentieth century (Sussman 1979b:115). A possible explanation for this discrepancy is that the pattern was utilized during the time of the Spode and Copeland partnership, and afterwards by Copeland alone. Therefore, the first date is based solely on the maker's mark of Copeland/Late Spode. The vessel is probably a plate. Six sherds were surface recoveries, two came from 118 cm in Feature 1, and one is from 57 cm in Feature 2.

Sub-type 3.5 Bramble

Seven sherds displayed decoration on the interiors and exteriors of the sherds. The interior displayed two design elements: (1) a blue border on the rim with a creeping (ivy ?) vine at its base, below which was (2) a light blue foliage of feather-edged leaves mixed with large white flowers that appeared to be roses (Fig. 58i). This is the "Bramble" design of W.T. Copeland, with a lower date of post-1847 and an unknown upper date (Sussman 1979b:60). The vessel is probably a plate. Two sherds were surface finds, three were from the middle of Feature 1, and two were from the middle of Feature 2.

Sub-type 3.6 Watteau

Three sherds representative of at least two different vessels were recovered. The design consisted of three elements: (1) a border of blue semi-circular arcs above (2) a hexagonal "honeycomb" design over (3) a large blue floral design (Fig. 58j). This is Copeland's "Watteau" design which dates from 1847-61, based on the trademark (Sussman 1979a:41). The two vessels represented are both plates. One sherd was from the surface, one was from 87 cm in Feature 1, and the third was obtained from Feature 2 at 28 cm.

Sub-type 3.7 Edge Decoration

Four rim sherds displayed a dark blue bordered rim with blue streaks extending from the border vertically towards the center of the sherd (Fig. 58k). This has been designated as the "Edge Decoration: Variety b", whose manufacturer and dates are unknown (Sussman 1979a:117). Three sherds were from the surface and a fourth was found at a depth of 33 cm in Feature 2.

Sub-type 3.8 B700

Three sherds were recovered of which two were rims displaying three rows of purple-blue hexagons, each with a square in their interior (Fig. 58 l). Each row was bordered by a blue line. This is the "B700" design produced by W.T. Copeland from about 1838 to post-1847 (Sussman 1979b:64). The vessel is a plate. All the sherds were surface recoveries.

Sub-type 3.9 B772

Three sherds which showed decorative elements on the interior and exterior were found. The interior showed a dark purple-blue curved floral motif; the exterior was tinged blue (Fig. 59a). This is the "B772" design of W.T. Copeland dated from 1847-67 (Sussman 1979a:38) as well as 1839 to post-1882 (Sussman 1979b:65). The vessel is probably a plate. One sherd was recovered in a shovel test; the other two were from the upper portion of Feature 2.

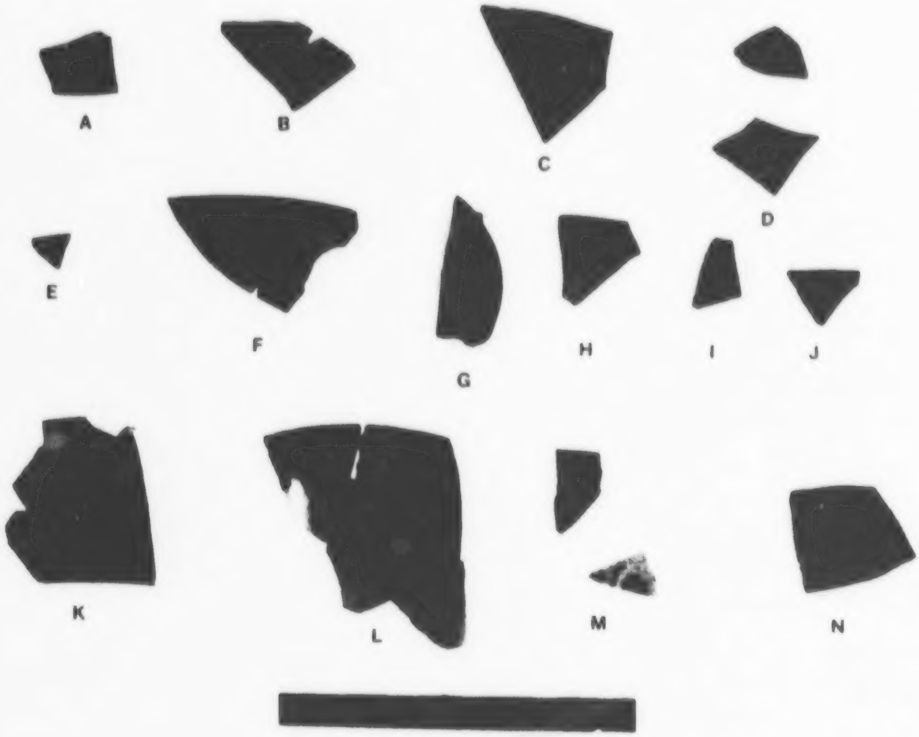


FIGURE 59 Ceramic types
(a) Type 3.9 B 772
(b) Type 3.10 Ivy (vessel 1)
(c) Type 3.10 Ivy (vessel 2)
(d) Type 3.11 B 773
(e) Type 3.12 Beverly
(f) to (j) Type 3.14 Ruins
(k) Type 3.15 Hand painted: yellow and black
(l) Type 3.16 Red linear stripes
(m) Type 3.17 Black and green florals
(n) Type 3.18 Red florals.

Sub-type 3.10 Ivy

Two sherds exhibited a bell-shaped design over dotted circles (Fig. 59b). This is possibly one of the Copeland "Ivy" designs. However, the designs on the two sherds from the Garden Site were blue; those of the "Ivy" as listed by Sussman are violet or reddish-violet (Sussman 1979a:43). This type dates from 1845 to post-1865 (Sussman 1979b:135). One sherd was found in a shovel pit, the other in the upper levels of Feature 2.

A basal sherd with a light purple oak and acorn (Fig. 59c) design on the interior of the plate and a stencilled "Copeland" (Fig. 60b) over a white background on the exterior was also found. Over the "n" and "d" appears the number "3". This is also a possible "Ivy" design, containing the oak and acorn motifs. The date from the trademark is suggestive of the 1847-67 range (Sussman 1979b:240-241). The sherd was recovered from the middle levels of Feature 2.

Sub-type 3.11 B773

Four sherds, which displayed a dark blue floral design with a lighter blue background, were identified as "B773" (Fig. 59d). This pattern was produced by Copeland and Garrett and by Copeland alone. The dates of use are from 1839 to post-1847 (Sussman 1979b:67). Two sherds were from the surface, one was from a shovel pit, and the third occurred in the upper portions of Feature 1.

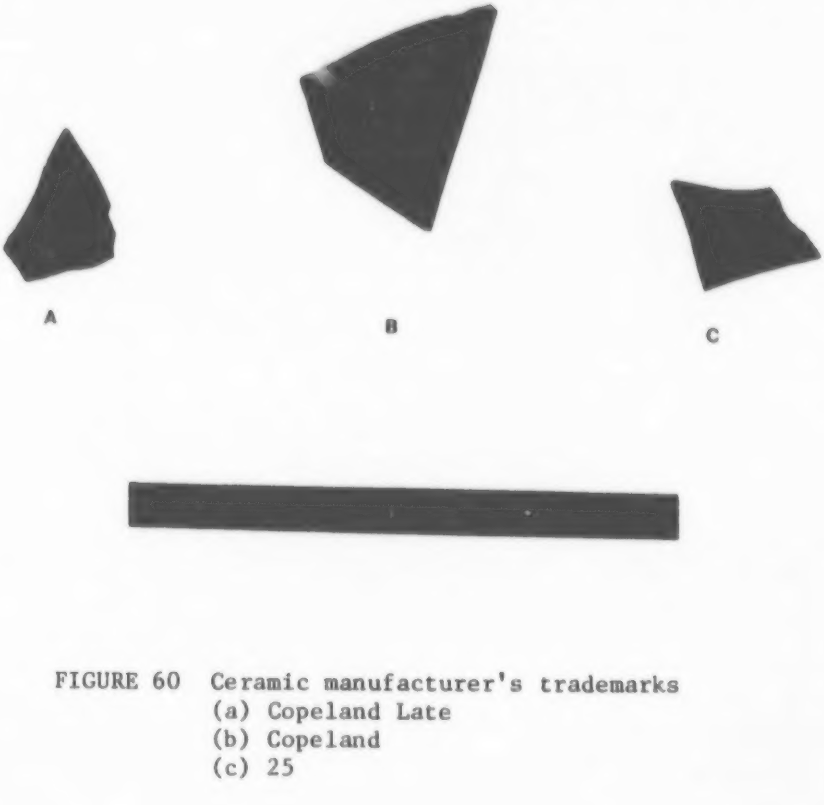


FIGURE 60 Ceramic manufacturer's trademarks
(a) Copeland Late
(b) Copeland
(c) 25

Sub-type 3.12 Beverly

This was a rim sherd with a design consisting of two elements. Around the rim were two rows of rectangles with each alternately coloured white or blue thereby creating a checkered effect (Fig. 59e). Below this was a blue floral design, possibly of a leaf. This is the "Beverly" design of both Copeland and Garrett and W.T. Copeland. Its dates are 1832 to the 1900s (Sussman 1979b:56). The rim is probably from a bowl. This sherd was a surface recovery.

Sub-type 3.13 Trade Mark

A small basal sherd was recovered that contained a portion of the trademark "Copeland" above "Late", both coloured green (Fig. 60a). The style of this mark is suggestive of a date of 1847-67. The sherd is either from a plate or a saucer and was a surface recovery.

Sub-type 3.14.1 Ruins: Landscape

Ten sherds displayed a combination of three design elements (Fig. 59f, g and j). The rim was bordered with a wide dark blue line and below this a dark blue cluster of oak leaves and acorn. The second and third elements are of a structure/landscape scene, with the former displaying an aquaduct in blue and the latter a light blue tower (?) with a door and window. These designs are the "Ruins" pattern of W.T. Copeland and date from 1848 to the 1900s (Sussman 1979b:168). Depending on the trademark, this design can also date from 1847-67 (Sussman 1979a:25). Two different vessels are represented

-- a plate and possibly a cup. Seven sherds were surface recoveries and three were from Feature 1 -- one at 5 cm, the other two at 110 cm.

Sub-type 3.14.2 Ruins: Dark Blue on Blue

Six sherds with oak leaf and acorn of dark blue over a lighter blue background were also recovered, and are representative of two vessels. The design originates at the rim, extends vertically down the sherd (Fig. 59i, j) and is located on both sides of the sherd. These vessels probably date to the same period as Type 3.14.1 and are either plates or saucers. Two sherds were surface finds, one was from Feature 1, one was from the surface of Feature 2, and two were from the upper strata of Feature 3.

Sub-type 3.15 Hand Painted: Yellow and Black

Seven sherds with a hand-painted design consisting of three elements were found. The first element, located on the rim, is a thin black line which creates an upper border for the remaining designs (Fig. 59k). The second element comprised black hand-painted flowers on a wide yellow background. Below this is the third element -- a thin black line that creates the lower border. This pattern could not be identified or dated. One sherd of this type was from a shovel test, two were from the surface and at 28 cm in Feature 2, and one was from 19 cm in Feature 1.

Sub-type 3.16 Red Linear Stripes

Four white cup sherds displayed a design consisting of four red linear stripes parallel to the rim. The design elements are as follows: a white rim, thin red line, thin white line, thick red line, thin white, thin red, and a thin white band with a thin red line at the middle of the vessel (Fig. 59l). This vessel could neither be identified nor dated. The sherds were from the upper level of Feature 3.

Sub-Type 3.17 Black and Green Florals

Seven sherds displayed a black and green hand-painted floral pattern. The black extended along the rim while the green floral was on the body (Fig. 59m). This represented another unidentified and undated pattern and is probably from a plate or saucer. Three are from the surface, one is from 22 cm in Feature 1, two are from the middle of Feature 2, and one is from the top of Feature 3.

Sub-type 3.18 Red Florals

Two rim sherds had a red painted floral design, and one of the sherds had been heated and the glaze removed (Fig. 59n). The sherds were probably from a plate and both were found on the surface, one on that of Feature 2.

Sub-type 3.19 White and Blue Striped

One sherd was found that had alternating white and blue horizontal stripes of non-uniform thickness (Fig. 61a) extending down the sherd. The vessel type is unknown and the specimen was a surface recovery.

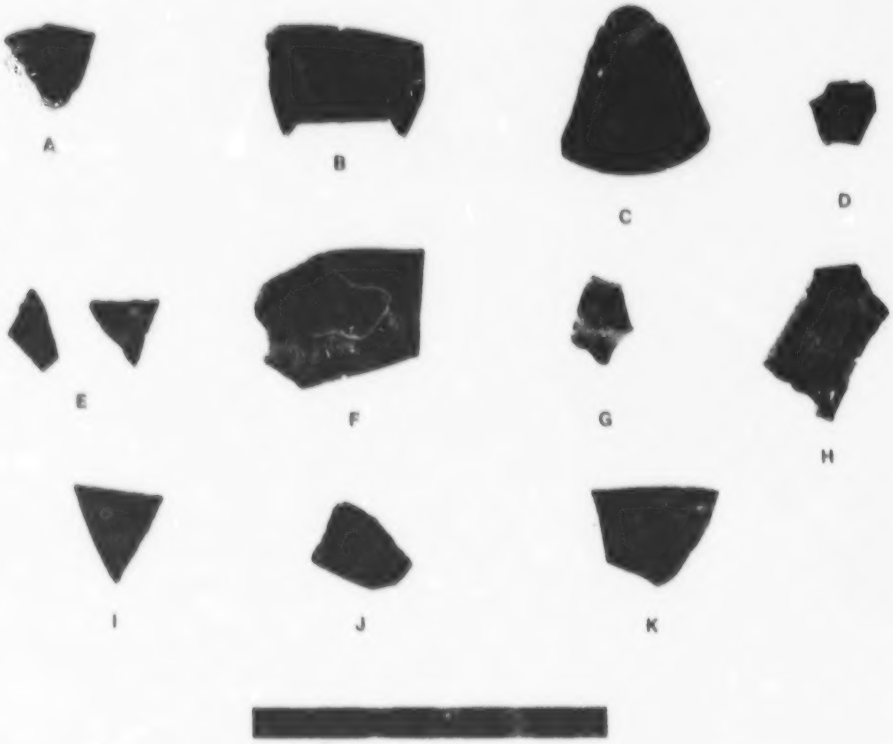


FIGURE 61 Ceramic types
(a) Type 3.19 White and blue striped
(b) Type 3.20 Gray-green
(c) Type 3.21 Blue and white lid
(d) Type 3.22 Purple-blue floral
(e) Type 3.23 Italian
(f) Type 3.24 Purple floral
(g) Type 3.25 Blue serrated
(h) Type 3.26 Edge decoration
(i) Type 3.27 Palm tree and moon
(j) Type 3.28 Florals and checks
(k) Rhus radicans

Sub-type 3.20 Grey-Green

Three sherds, two of which are rims, had a thin white border on the rim while the rest of the vessel was grey-green (Fig. 61b). The vessel is probably a cup. Two sherds were surface recoveries, the third was from the top of Feature 2.

Sub-type 3.21 Blue and White Lid

Two sherds were recovered, the largest of which appears to be a lid from some type of container (Fig. 61c). The upper wall of this sherd is acutely sloped while the lower portion is vertical. There was at one time a white knob at the top of the lid but it was not recovered. The exterior of the lid was blue and the interior, white. Both of these sherds came from the lower levels of Feature 1.

Sub-type 3.22 Purple-Blue Floral

Seven small sherds displaying a purple-blue transferred floral motif were recovered. Most of the sherds were exfoliated. The pattern could not be identified but is possibly more of the "Ruins" design (Fig. 61d). Two were from the surface; one was from the surface and two were from the bottom of Feature 2; and one was from the top of Feature 3.

Sub-type 3.23 Italian

Falling within this category were two small sherds with a blue background superimposed by a foliage design of cresentic feather-edged leaves (Fig. 61e). This is possibly the "Italian" design of Copeland and Garrett and also W.T. Copeland which has a date range of 1816 to the present (Sussman 1979b:134). They are probably from a plate. One sherd was a surface find, while the other came from a depth of 19 cm in Feature 2.

Sub-type 3.24 Purple Floral

A single rim sherd was obtained that displayed five design elements: a light purple border along the rim, a horizontal thin white band, a purple line darker than the border, a thin white band similar to the one below the border, and a purple floral motif with the petals extending vertically (Fig. 61f). This pattern was unidentified and undated. It is probably from a plate and was a surface recovery.

Sub-type 3.25 Blue Serrated

This was a single sherd with a blue feathered (?) design (Fig. 61g). The design and vessel form have not been identiifed. It came from the top of Feature 2.

Sub-type 3.26 Edge Decoration

Three rim sherds with a blue painted border on the rim were found (Fig. 61h). This was the only design element displayed and could be a variety of the "Edge Decoration" (Sussman 1979a:116-118). The sherds are probably from a plate. One came from a shovel test, one occurred at 118 cm in Feature 1, and the third was found at 18 cm in Feature 3.

Sub-type 3.27 Palm Tree and Moon

Two sherds were recovered with design elements on both the interior and exterior. The interior displays three small light blue triangles set in a horizontal row against a white background. The exterior of the sherds exhibited a landscape design of white, light blue bordered palm (?) trees on a blue background (Fig. 61i). Among these trees is a small white circular object possibly representing the moon. The design was unidentified and is tentatively called "Palm Tree and Moon". Its vessel type is unknown. Both sherds came from the upper levels of Feature 2.

Sub-type 3.28 Florals and Checks

Three sherds exhibiting two design elements were found. The first design element was a checked pattern of white rectangles produced by blue horizontal and vertical lines extending over a white background (Fig. 61j). This white background changes to blue part way down the sherd. The second element, situated below these checks, consisted of a foliage motif of feather-edged leaves, possibly elm. The design has tentatively been called "Floral and Checks" and could be from a plate or saucer. Two sherds were surface finds; the third was in the upper level of Feature 2.

Sub-type 3.29 *Rhus radicans*

Eight sherds with a single design on the interior consisting of a dense blue foliage motif on a white background were found. No vertical or horizontal ordering existed; therefore, the design looked like forest undergrowth (Fig. 61k). The design could not be identified and is tentatively called "*Rhus radicans*". It is probably from a plate. Three were recovered from the surface; one came from a depth of 111 cm in Feature 1, and four were obtained from the surface and upper level of Feature 2.

Type 4.0 Plain White Earthenware

Sub-type 4.1 Cups

The following sub-types are probably cup fragments. No minimum number of vessels was calculated.

4.1.1. A small sherd from near the rim of the vessel was recovered on the surface.

4.1.2. A body sherd with a portion of a handle attachment was also recovered from the surface (Fig. 62a).

4.1.3. A single shoulder sherd was found in the upper levels of Feature 2.

4.1.4. Two concave rim sherds were obtained -- one from the surface, the other from a shovel test (Fig. 62b).

4.1.5. A single body sherd from the basal area of a vessel was recovered from the surface of Feature 3 (Fig. 62).

4.1.6. A single body sherd was recovered in a shovel test.

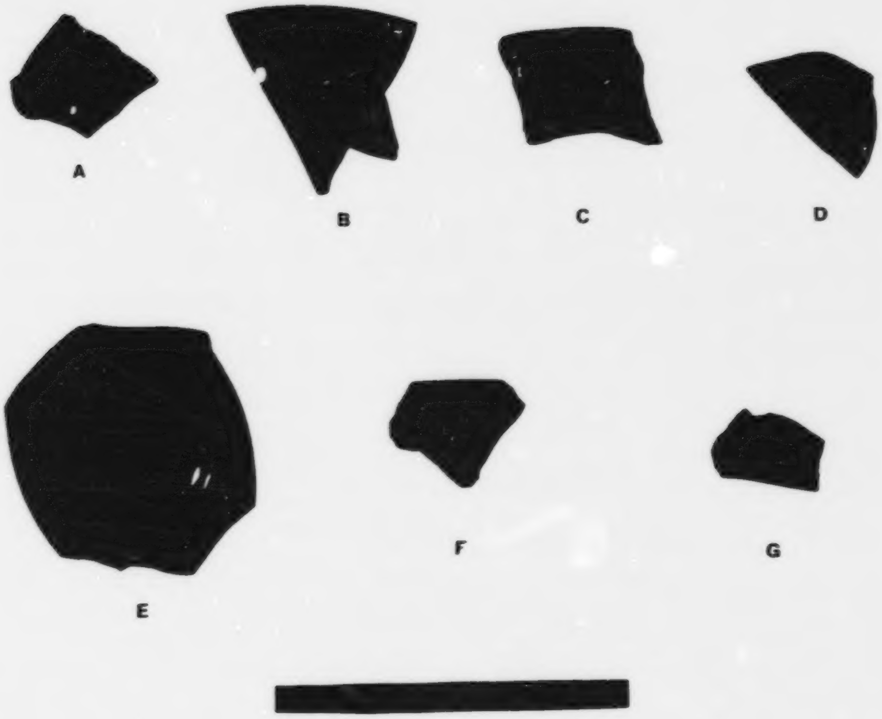


FIGURE 62 Ceramic types
(a) 4.1.2 Cup
(b) 4.1.4 Cup
(c) and (d) Type 4.2 Bowl sherds
(e) Type 4.2.1 Bowl base
(f) Type 4.2.2 Bowl base
(g) Type 5.0 Pearlware

Sub-type 4.2 Bowls

4.2.1. Two basal sherds, including one complete base with a diameter of 5.7 centimeters, were found. The inner surface of the complete base displayed several striations which are likely spoon scratches. The glaze on the exterior surface divided the base into a green-tinged zone and a white zone (Fig. 62c). The sherd was recovered at a depth of 45 cm in Feature 2. The second sherd was found at 29 cm deep in Feature 3.

4.2.2. Four sherds displayed features that suggested they were from a hexagonally- or octagonally-shaped cup (Fig. 62f). The sherds representing this vessel were from the rim, the base and the body. It is possible that the facets extend from the rim to the base. All four sherds were recovered in Feature 2 -- the rim at 26 cm, the base at 10 cm. One of the body sherds was a surface find, the other was recovered at a depth of 49 cm.

Sub-type 4.3 Flatware

The following sherds are from either plates or saucers.

4.3.1. A rim sherd with a linear design in raised relief was recovered on the surface.

4.3.2. A basal sherd with a shallow foot ring enclosing a concave area was also a surface recovery.

4.3.3. A shoulder sherd was found that contained a ring on the interior surface at the point of articulation between the rim and the basal area. It was a surface find.

4.3.4. Four basal sherds from different vessels were obtained. The sherds ranged in thickness from 0.34 to 0.62 cm. Two were from the surface and two were from the upper strata of Feature 2.

Sub-type 4.4 Unknown Vessel Types

Seven sherds were obtained that were less than 0.15 cm in size and could not be attributed to any specific vessel type.

Sub-type 4.5 Heated Sherds

Three sherds exhibited evidence of being heated by having the glaze removed (Fig. 62).

Sub-type 4.6 Exfoliated Sherds

Thirty-four exfoliated sherds without any definite shape or distinguishing characteristics were recovered in a variety of locations.

Type 5.0 Pearlware

The pearlware sherds, all of which were undecorated, were divided on the basis of foot ring morphology. The last sub-type contains body sherds and these were therefore grouped together. Pearlware is characterized by the applied clear glaze producing a faint blue tinge to the vessels, especially in areas where the glaze was applied in thicker quantities such as adjacent to footrings and cup handles.

Sub-type 5.1 Wide Foot Ring

Two sherds had a ring formed by the indentation of the base. The ring itself was fairly wide in comparison to the other examples. One sherd was from the surface, the other from the upper levels of Feature 2.

Sub-type 5.2 Narrow Foot Ring

Two sherds displayed a ring formed in the same manner as 4.1. However, this ring was narrower than the above and was raised higher (Fig. 62g). Both sherds had a bluish tinge on their exteriors and were surface recoveries.

Sub-type 5.3 Wide and Thick Foot Ring

Three sherds had a foot ring formed by indentation of the base. These sherds were extremely thick and the foot ring was wider than those of the above. One was from the surface, one was recovered at 25 cm in Feature 2, while the third was found 12 cm deep in Feature 3.

Sub-type 5.4 Angled Foot Ring

A single sherd, with the foot ring angling obtusely from the base, was recovered from the surface. The sherd was either from a cup or bowl.

Sub-type 5.5 Body Sherds

Three sherds -- two body and a shoulder -- all probably came from a plate or saucer. The shoulder sherd was from that portion of a plate where the rim indents downwards to form the base. All of the sherds, one of which was from Feature 3, were surface recoveries.

Discussion

An analytical tool that can be utilized to yield temporal information is the mean ceramic date formulated by Stanley South (1971). This date is derived by using the median date for a specific ceramic type based on that type's design or trademark (Table 24). The median date is multiplied by the number of sherds contained within the type. When the sum of the products of the entire ceramic types is obtained, it is divided by the total number of ceramics. The resultant date is the mean ceramic date and may be used as a mean date for site occupation. However, at the Garden Site, there are difficulties with this technique. All of the dateable ceramics are of the Copeland and Garrett or Copeland variety, and several of these patterns are still in use today. Hence, the median date is skewed towards the present. However, when the historical data are considered, this problem can be circumvented. No earliest date of occupation is accurately known. Therefore, the earliest date possible for the ceramic type must be utilized. The site was probably not occupied after the time N.J. Richot donated the land to the Trappists in 1892. Therefore, when considering any of the dates that have an upper boundary of post-1900, a terminal date of 1892 can be used.

The median dates given are from those designs which could be positively identified. The mean date of the occupation is 1864.

TABLE 24

CALCULATION OF THE MEAN CERAMIC DATE

CERAMIC TYPE	TYPE MEDIAN	x_i	SHERD COUNT	PRODUCT
3.2	1872	72	1	72
3.4	1860	60	9	540
3.5	1870	70	7	490
3.6	1854	54	3	162
3.8	1843	43	3	129
3.9	1866	66	3	198
3.10	1857	57	2	114
3.10	1857	57	1	57
3.11	1866	66	4	264
3.12	1862	62	1	62
3.13	1857	57	1	57
3.14.1	1870	70	10	700
3.14.2	1870	70	6	420
TOTAL			51	3265

$\frac{3265}{51}$ = 64.01 or 1864.01

Since ceramics were recovered in all three of the features, they provide an excellent means for intrasite comparisons. Two methods will be utilized: discussion of ceramic distribution and a comparison of mean dates using the mean ceramic date formula.

Distributional Comparisons

A total of 24 sherds were recovered from Feature 1 and were clustered in three concentrations. The first was between the surface and 35 cm. The second was a smaller concentration at 55 cm, and the third from 85 to 125 cm. These concentrations coincide with the three cultural zones identified in the stratigraphy.

In Feature 2, 60 sherds were recovered. Of these, 24 or 40% were recovered from the surface. No noticeable pattern or concentration was found to occur in the vertical distribution of the excavated sherds. Ceramics were recovered in every level of the second feature, except two. Therefore, when compared with the stratigraphy of the feature, the ceramics do not support the contention that the pit was used for a period of time and that the clay and chinking were a separate and distinct deposit used to level the feature.

The third feature had a total of 19 sherds contained within it. All of the sherds, except one, were concentrated in the first 35 cm, with no noticeable pattern or clustering.

When the three features are compared, Features 2 and 3 appear to be somewhat similar in that both have the largest amounts of ceramics contained in the upper portions of each feature. The relationship between these two features and Feature 1 is difficult to determine. It is possible that the upper levels of Feature 1 are also coterminous to that of the second and third features, as 46% of Feature 1 ceramics were recovered in the first 35 cm. There was only one sherd type found in all three features -- Type 3.17, the painted green and black floral design. Several types were common to two features (Table 25).

TABLE 25

CERAMIC TYPES COMMON TO AT LEAST TWO FEATURES

NAME	FEATURE	LEVEL*	FEATURE	LEVEL*
Coarse stoneware	2	1 & 3	3	9
Ceres	1	2, 12 & 18	3	2 & 4
Sponged	1	1	2	10
Flower vase	1	24	2	12
Bramble	1	5 & 12	2	5, 9 & 10
Watteau	1	18	2	6
Ruins	1	1, 3, 22 & 23	2	Surface
Ruins	2	Surface	3	2
Ruins	1	4	3	5
Yellow and black	1	4	2	6
Purple-blue floral	2	16	3	4
Edge decoration	1	24	3	4
Rhus radicans	1	23	2	Surface

* One level equals 5 cm

Only those designs that were positively identified or those that were clearly related were used.

On the basis of the stratigraphy, it was previously postulated that the lowest deposit of Feature 1 pre-dated either of the other two features. It was also assumed that the middle of Feature 1 was deposited at roughly the same period as Features 2 and 3 were used. The ceramic types, in terms of distribution, do not support these assumptions. For example, Type 3.20 and 3.23 are both common to the lowest areas of Feature 1 but are also recovered in the upper levels of Feature 2 and Feature 3. The top and bottom of Feature 1 also have separate types in common with the lower portion of Feature 2. Therefore, the ceramic distribution does not correlate with the stratigraphic evidence.

Mean Date Comparisons

The same situation exists when the relative dates of the ceramic types are compared. Using the mean ceramic date formula to calculate a mean date for each feature shows Feature 1 to date to 1866, Feature 2 to 1864 and Feature 3 to 1870 (Table 26). When each level of the feature is dated, the data obtained (Table 27) are even more peculiar. The lower levels of Feature 1 date later than the mid-levels. The same situation exists with Feature 2. The relative dates of the ceramic types therefore do not substantiate the stratigraphy. The possibility exists that one or both conclusions are incorrect. The sample size of the ceramics may not be large enough to provide a reliable mean ceramic date, or the mean dates derived may be inaccurate due to skewing towards a more modern date.

TABLE 26

MEAN CERAMIC DATES FOR EACH FEATURE

TYPE	MEDIAN	x_i	COUNT	PRODUCT
Feature 1				
3.4	1860	60	2	120
3.5	1870	70	2	140
3.6	1854	54	1	54
3.11	1866	66	1	66
3.14.1	1870	70	4	280
M 1866 ± 5			10	660
Feature 2				
3.4	1860	60	1	60
3.5	1870	70	3	210
3.6	1854	54	1	54
3.9	1866	66	2	132
3.10	1857	57	2	114
3.14.1	1870	70	1	70
M 1864 ± 6			10	640
Feature 3				
3.14.2	1870	70	1	70
M 1870				

TABLE 27

CERAMIC DATES OF FEATURE LEVELS

LEVEL (5 cm Intervals)	FEATURE					
	1		2		3	
	DATE (MEAN)	NUMBER	DATE (MEAN)	NUMBER	DATE (MEAN)	NUMBER
1	1870	1	1866 1870	1 1	nil	-
2	nil	-	1857	1	nil	-
3	1870	1	1866	1	nil	-
4	1870	1	nil	-	nil	-
5	1870	1	1870	1	nil	-
6	nil	-	1854	1	1870	1
7	1866	1	1857	1	nil	-
8	nil	-	nil	-		
9	nil	-	1870	1		
10	nil	-	1870	1		
11	nil	-	nil	-		
12	1870	1	1860	1		
13	nil	-	nil	-		
14	nil	-	nil	-		
15	nil	-	nil	-		
16	nil	-				
17	nil	-				
18	1854	1				
19	nil	-				
20	nil	-				
21	nil	-				
22	1870	1				
23	1870	1				
24	1862	2				

It seems most appropriate to accept what has been observed in the stratigraphy. Through historical records, it is certain that the site was flooded at least six times from a period of 1826-1966 (p. 17). Assuming that the site of DkLg-16 is the actual place of the Beauchamps' settlement, the occupants were flooded in 1852 and again in 1861 (Labelle, et al. 1966). Therefore the conclusion about the occurrence of floods as observed in the stratigraphy is probably correct. The discrepencies evidenced in the ceramic dates are probably a result of their patterns being used by the manufacturers over a lengthy time period. The periods during which the site was most likely abandoned and then re-occupied are too close temporally to be reflected in the ceramics. If the same inhabitants returned after each flood they probably brought the same household wares with them. These wares could have broken and been deposited in the refuse areas in the same manner as they were in pre-flood times. The result is similar relative dates in all levels of the refuse pits, reflecting no depositional sequence.

Metal Artifacts

Metal artifacts included cutlery, two clasp knives, lead foil, and a general grouping of other metals.

Cutlery

A three-tined fork was recovered from Feature 2 at 65 cm (Fig. 63c). It was 16.75 cm in length and the tines measured 3.82 cm

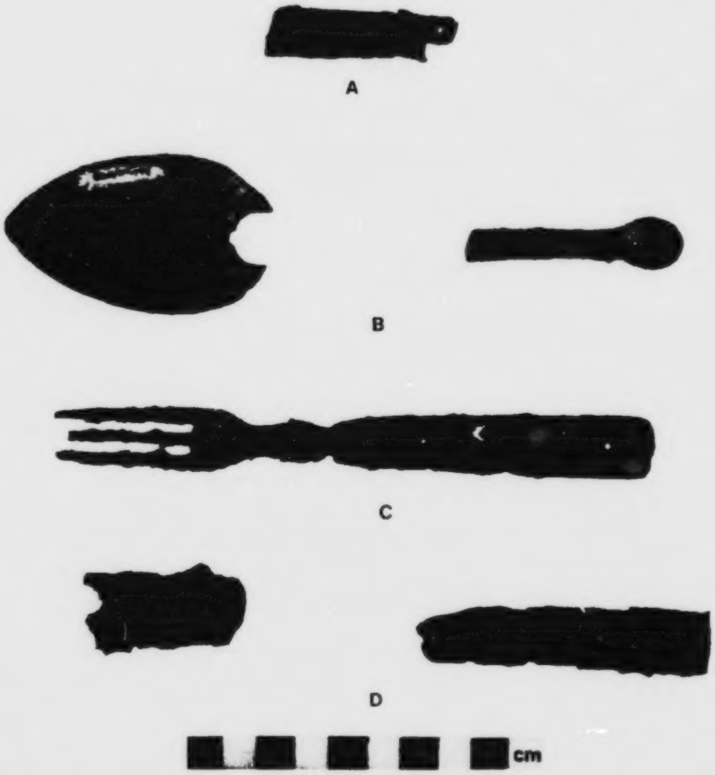


FIGURE 63 Cutlery
(a) Clasp-knife blade
(b) Spoon bowl and handle (found separately)
(c) Fork
(d) Clasp knife and handle

long. There were two small holes in the handle where metal pins would have attached the handle covering. The covering was most likely of wood, as a knife found in Feature 1 at 20 cm is of the same style and approximate size and has the remnants of a wooden covering still attached (Fig. 63d). The blade is 5.20 cm long with a modified tip where notches have been removed, leaving it with a stepped appearance. The blade may have been used as a screw driver after part of the blade had broken off.

The bowl of a spoon was recovered from Feature 2 at a depth of 20 cm. It has a concave oval shape, with a U-shaped piece removed from the base where the handle would have been attached. It is 4.33 cm wide at the broadest point and 7.25 cm long. A broken metal handle, found in the same feature between 45 and 50 cm, may be a portion of the same spoon. It is slightly curved and measures 5.98 cm long (Fig. 63b).

Clasp Knives

The blade of one clasp knife was found in Feature 2 at a depth of 50 cm. The blade was 4.92 cm long and had a small hole at the end where a metal pin would have attached it to a handle (Fig. 63a). A second clasp knife (not illustrated) was found with the remnants of a wooden handle still attached. This was found in Feature 1 at a depth of 20 cm. The handle measured 7.73 cm in length, with the blade being approximately 4.0 cm long.

Lead Foil

Sixteen pieces of lead foil were recovered: eight in Feature 1 from 30 to 120 cm; one in Feature 2; one in a shovel pit; and six from the surface.

Miscellaneous Metal

A metal key, found on the surface measured 6.20 cm long with a ring 2.30 cm in diameter at one end (Fig. 64c). The other end was missing.

A flattened tin cup was excavated in Feature 2 from 65 to 70 cm. It measures approximately 11.0 cm in diameter and 4.20 cm deep (Fig. 64a and b). The base was not recovered. A handle, composed of two fragments and also found in Feature 2, likely articulates with the cup. These pieces were from 10 and 25 cm depths and measured from 2.40 cm wide -- where it would have attached to the lip -- to 1.3 cm wide where it would have attached at the base.

A tin lid with the brand name "Flex Spout" was found at 1 cm in a shovel pit. It is approximately 4.70 cm in diameter.

A fragment of a label from a tin can or lid was found on the surface with the letters "EY'S/AL LIN/RCUSS". This is probably a label for "Eley Brothers Percussion Caps" that were marketed from 1866 to 1875 (Parks Canada Research Bulletin 1978:16).

A lead object possibly a bottle-closing mechanism or seal, was found in Feature 1 at a depth of 65 to 70 cm. It had a semicircular ring with three wire-like pieces extending vertically. The opening in the ring is approximately 2.8 cm in diameter.

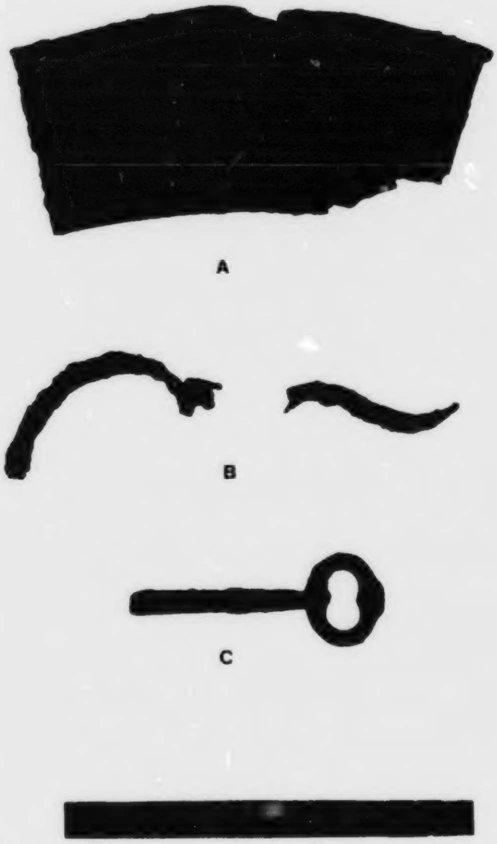


FIGURE 64 Metal artifacts.
(a) Cup
(b) Cup handle
(c) Key

Bottle and Chimney Glass

One hundred and thirty-five bottle and chimney lamp glass fragments were recovered from the site. This glass was divided into 18 types for purposes of description and comparison. Unfortunately, the sample of glass was not large enough for accurate dating and identification. One bottle glass fragment was found with the embossed trade mark "DAVIS", and was identified as being from a "Perry Davis Pain Killer" bottle. All other glass was typed according to colour, thickness and patination. These characteristics were used, as more detailed description was impossible. Diagnostic features such as neck and mouth of the bottle and seam lines, from which the manufacturing process and approximate date could be determined, were not recovered.

Patination refers to the crust that forms on old glass.

> The mechanism of patination, very briefly, is a process in which water soluble constituents are selectively leached out of a body of a piece of glass leaving behind a lattice of relatively insoluble silica which by some as yet undetermined process, repolymerizes itself into a distinct layer with the "yearly cyclical factor" as Brill calls it, providing for the development of layers on an annular basis. The process of patination results in the development of two physically distinct areas in a patinated specimen (Demmy 1967:49).

Household glass was divided into 19 different types.

Type 1.0

This blue glass was 0.32 cm to 1.50 cm thick, with little patination. The variation in the thickness of the glass is due to the curvature, the more curved portions being thinner. Six fragments were found, one on the surface, four in Feature 2 at 30 to 65 cm, and one from a shovel pit.

Type 2.0

Five fragments of brown glass were recovered. This glass was 0.35 cm thick and without patination. Two fragments were found on the surface, two were found in shovel pits and one was found in Feature 3 at a depth of 20 cm.

Type 3.0

Six fragments of thick (.80 cm), green, heavily patinated glass were recovered (Fig. 65e). Two were found on the surface, one in a shovel pit, one in Feature 1 at a depth of 30 cm and two in Feature 2 between 10 and 25 cm.

Type 4.0

This glass was green, 0.33 cm thick and had some patination. Three fragments were collected: one from the surface, one from Feature 1 at 30 cm, and one from Feature 2 at 30 cm.

Type 5.0

This was clear glass, without patination, that measured 0.5 cm in thickness. Nine fragments were found: five on the surface, and four in a shovel pit.

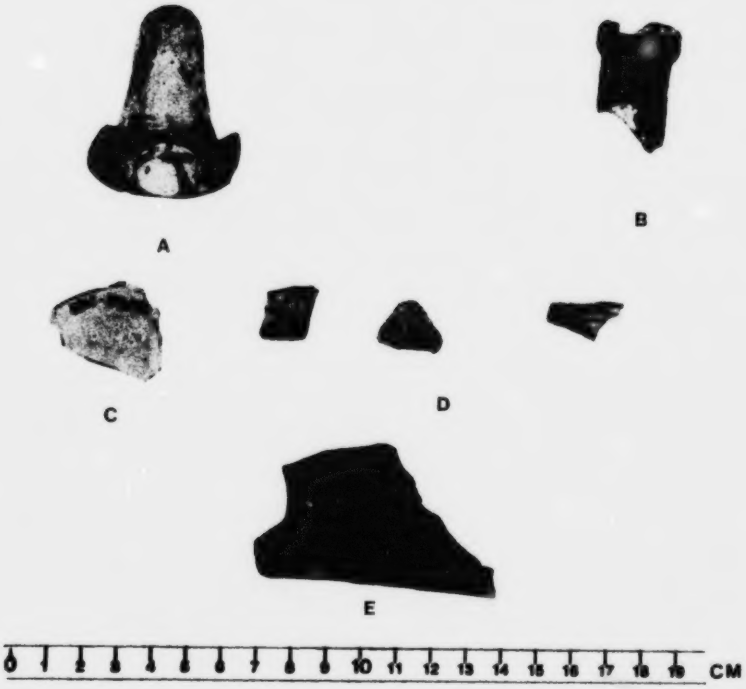

A
B
C
D
E
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 CM

FIGURE 65 Bottle glass
(a) "Kick-up" from a bottle base
(b) Bottle finish
(c) Panel from "Davis Vegetable Pain-Killer"
(d) Lettered side panels
(e) Green bottle glass

Type 6.0

Three fragments of green, unpatinated glass were collected -- one from the surface and two from shovel pits.

Type 7.0

Measuring from 0.36 cm to 0.49 cm in thickness, this glass was green-tinged, with no patination. The variation in thickness was due to the curvature in the glass (similar to Type 1.0). Seven fragments of this type were recovered: two from the surface, two from Feature 1 at 105 to 110 cm, one from Feature 2 at 30 cm, and one from Feature 3 at 35 cm.

Type 8.0

Of the two fragments recovered, one was from Feature 1 at 15 cm and the other was from the surface. These were greenish-tinted fragments with no patina and a thickness of 0.27 cm.

Type 9.0

Four fragments were found -- three on the surface and one in a shovel pit at a depth of 5 cm. This glass was pink-tinged with very little patination and was 0.41 cm thick.

Type 10.0

This type was composed of 22 fragments of clear, unpatinated glass of about 0.19 cm thickness. Six were recovered from the surface;

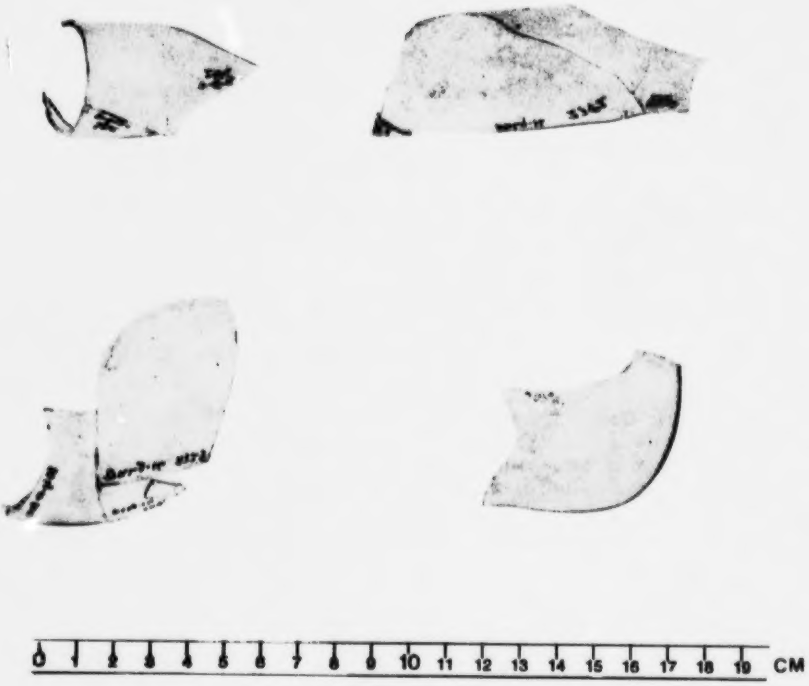
three were from shovel pits; eight were from Feature 1, between 20 and 120 cm and five were from Feature 2, at from 35 to 70 cm deep.

Type 11.0

This type consisted of fragments from a lamp chimney. It was clear glass and heavily patinated. The thickness of the glass ranged from 0.06 cm to 0.32 cm, depending on its location in the chimney (thicker at the top, thinnest at the shoulder and thickest at the bottom). Of 15 fragments, six articulated to form the rim of the top, and four formed a portion of the shoulder (Fig. 66). All the restored fragments came from Feature 2 between 40 and 80 cm deep. The remaining three fragments were from the surface while two were from shovel pits. The surface fragments were found near Feature 2. As kerosene lamps first appeared in the 1860s, this glass would probably have been used in the latter part of the 1800s (Lorrain 1968:44).

Type 12.0

Twenty-six pieces of melted glass were recovered that were of different kinds and thicknesses. These were combined, as it was difficult to differentiate any formal attributes. Twelve fragments were found on the surface; five were from Feature 1 from 10 to 30 cm; three were from Feature 2, from 25 to 75 cm; and one was from Feature 3, from 5 cm to 20 cm.


0
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18
19
CM

FIGURE 66 Lantern glass.

Type 13.0

This includes otherwise unidentified lettered or patterned glass. Three fragments, representing three different vessels were found. One fragment with the letter "L" embossed was found in Feature 1 at 110 cm, and was green-tinged and patinated. The second vessel displayed the letters "MAR", was found on the surface, and was clear and unpatinated. The third fragment was patterned with raised bumps and was also clear and unpatinated. This fragment was recovered from a shovel pit.

Type 14.0

This was a fragment of a "Davis Pain Killer" bottle. This type of glass is a common recovery in mid-to-late nineteenth century sites (Toulouse 1970). An advertisement for "Davis Pain Killer" appears in a copy of the Weekly Manitoban, April 15, 1874. One fragment was found in the excavations and displayed an embossed "Davis" trademark (Fig. 65c). The glass was 0.17 cm thick, with a green tint and some patination.

Type 15.0

Eight blown glass fragments, 0.13 cm thick, were recovered in Feature 1 at depths ranging from 100 cm to 125 cm.

Type 16.0

Three fragments of clear, seamed, patinated glass approximately 0.10 cm thick were obtained in Feature 1 from 105 to 120 cm deep. The exact method of manufacture, other than that a mold was used, could not be determined, as the fragments were too small.

Type 17.0

This was a neck and mouth of a green-tinted bottle which had been heated (Fig. 65b). A section of the neck and lip was missing; therefore, the method of manufacture could not be determined. Diameter of the mouth was 1.33 cm, while the glass was 0.5 cm thick at the lip and 0.38 cm at the neck portion. It was found in Feature 3 at a depth of 25 cm.

Type 18.0

This was a kick-up, possibly from an olive oil bottle (Jones 1971). It was made of transparent green glass with little patination and was recovered in a shovel pit (Fig. 65a). The kick-up was 5.18 cm deep and the base measured about 4.07 cm in diameter.

Type 19.0

Seven fragments of bottle glass from a patent medicine bottle were found (Fig. 65d). These were 0.17 cm thick and were of greenish glass with some patination. One fragment displayed the embossed letters "ER", a second had the letters "AB" embossed, and a third had an embossed "I". Two pieces of the same colour and thickness as the lettered glass were joined to form the edge portion of an indented panel. The "ER" fragment was found in Feature 2 at a depth of 20 cm, the "AB" fragment was found on the surface, and the "I" fragment was from a shovel pit. The two edge pieces came from Feature 2, between 25 cm and 30 cm deep. Two other fragments were found that are likely part of the same bottle. One appeared to be a shoulder fragment and was found in Feature 3 at 35 cm and the other, which contains a portion of the letter "E", came from a shovel pit. This glass may represent a Vegetable Pain Killer or Dr. Hock's "Purely Vegetable Remedy" (Toulouse 1970). It probably dates between 1860 and 1900 (Lorrain 1968:41).

Charcoal

Introduction

Charcoal was common in all three features, and a total of 488 fragments were analyzed. Wood species were determined using the comparative charcoal collection at the University of Manitoba Anthropology lab. It was assumed that the distribution of species among the features would suggest the possible function of the features themselves and, also, how the wood was used.

Method of analysis consisted of breaking the sample transversely to produce a fresh cross-section, mounting the specimen on a glass slide and then examining it under a microscope at a magnification of 25X. The cross-section was then compared with the University of Manitoba collection. When it was impossible to obtain a clear cross-section, the specimen was considered unanalyzable.

First, wood type was determined (ring porous hardwood, diffuse porous hardwood, or softwood). Then, where possible, species was identified. The similarity between _Salix_ and _Populus_ hindered accurate identification.

Results

Both _Salix_ and _Populus_ were the most frequent species represented at the Garden Site (Table 28). In terms of construction value, _Salix_ would have been used for laths in log construction. Since the chinking displayed no marks indicative of lath construction, it is probable that the _Salix_ was used for fire wood. The Populus may represent burnt building materials; however, most of the pieces analyzed were less than 5 cm long. Therefore, they probably represent fuel embers. The same postulate holds for the rest of the hardwoods. These species can be obtained in the nearby riverine forest and, as shown, occur less frequently than the more abundant _Salix_ and _Populus_. It is probable, then, that the charcoal deposits are hearth debris.

TABLE 28

Charcoal Identification

Species or Family	Number	Frequency (%)
Salix	129	26.4
Populus	119	23.0
Pinaceae	66	13.5
Ulmus	44	9.0
Fraxinus	41	8.4
Acer	33	6.8
Quercus	31	6.4
Unanalyzable	32	6.5
TOTAL	488	100.0

The softwoods present an additional problem of interpretation. Because of the difficulty in accurately determining softwood species, caution must be used when attempting an explanation of their occurrence. The fragments have been tentatively identified as either Thuya, Larix or Picea (cedar, tamarack or spruce). The closest stands of cedar and tamarack are, at present, located at Birds Hill Provincial Park. This was probably also true in the 1860s. Since the wood would have to be transported into the area and would, therefore, have been quite expensive, it is unlikely that it was used as firewood. In addition, these fragments were considerably larger than any of the other recovered charcoal remains. The softwoods could represent the remains of cedar shingles. According to Ross (1972:388), such shingles were considered a luxury and usually the preferred species was oak. Feature 3 contained 97% of the entire softwood sample. Of that, 77% occurred in a vertical space of 20 cm. The only other feature containing softwood was Feature 2, which also contained 96% of the entire sample of Ulmus. This species occurred throughout the feature with a concentration at the 40 to 60 cm level. The two most frequent species, Salix and Populus, were distributed evenly throughout the three features.

When charcoal distribution is compared between the three features, a similarity exists between the 20 cm to 35 cm zones of Feature 1 and 3. Feature 1 also has an increased density at its base, with a noticeable absence for the next 25 cm. This bottom zone may represent the earliest deposition at the site. The second feature has an increased density starting at a depth of about 40 cm and terminating at 70 cm. This may suggest that either this mid-portion of Feature 2 is the same, temporally, as the upper zones of the other two features, or that the mid-portion of Feature 1 was used and then abandoned in favour of the other two.

Seeds

Introduction

Seed analysis was accomplished using the University of Manitoba Anthropology Department reference collection and several reference works on the subject (Scoggan 1957; McAndrews 1974; U.S. Department of Agriculture 1948). The analysis involved observing each individual seed under a microscope at 16X. First, the family to which the seed belonged was determined. Then, when possible, it was identified according to species. This was done for the entire sample, except for the numerous chenopods (Table 29). Their number was determined by laying the entire sample on graph paper and counting the number of seeds in one centimetre square, then multiplying by the number of squares.

Chenopodium comprised the most abundant species at the site. However, it is likely that these represent material that was stored by burrowing rodents, as the seeds were found in a rodent disturbance in Feature 3.

The second most frequent species was the *Corylus*, probably the *cornuta* variety. Several of these displayed evidence of being charred but this could have occurred post-depositionally.

TABLE 29

Seed Identification

Species	Count
Corylus	31
Prunus	10
Rosa	20
Amelancher	10
Brassica	3
Echinocystis	1
Hordeum	8
Chenopodium	3300
TOTAL	3383

It is difficult to determine whether the Rosa seeds represent human utilization of the rose hip, or deposition by animals. The hip contains high levels of Vitamin C and the possibility of human utilization should not be ruled out. The lowest levels of Feature 1 contained 90% of the sample, with the other 10% coming from the lower levels of Feature 2. If rose hips were used for human consumption, a greater number would be expected. Since there are about 3 to 4 seeds per berry, it would mean a maximum of six berries represented in feature 1 and one in Feature 2. This is not sufficient data to infer that the rose hip was being used as a food source.

The same situation applies to Prunus and Amelancher. The fruit of ten Prunus and only four Amelancher, were recovered. It is highly likely that these were used as a food source, especially if pemmican was made or consumed at the site.

The most interesting recoveries were the eight Hordeum or barley seeds, which were all recovered from the middle strata of

Feature 1. They were all completely carbonized. The presence of the barley indicates that cultivation of cereal crops was done at or near the site or may have been bought or bartered for. A contemporary Nor'Wester lists barley and most other cereals for sale. The small amount recovered gave little information other than the possibility that there was some type of cereal grain agriculture being practised near the Garden Site.

The Brassica (wild mustard) and the Echinocystis (wild cucumber) may be the result of natural deposition.

In retrospect, although Feature 2 usually contained most of the other artifact categories, this was not so for the seeds. Feature 3 contained the largest sample. These are the Chenopodium that were found over a vertical distance of 10 cm to 80 cm, with the bulk of the sample in the 60 cm to 80 cm zone. Most of the seeds recovered from Feature 1 were from the brown organic layer from 110 cm to 115 cm deep, with a second density at 40 cm to 50 cm deep. Most of the seeds from Feature 2 were recovered from between 20 cm to 40 cm deep and also from 60 cm to 80 cm deep.

Pipes

A total of 27 pipe fragments were recovered, 12 of these through excavation. The entire sample was divided into three types based on manufacturing materials: white kaolin, red stoneware, and brown stoneware (Fig. 67). The latter may not be pipes but were placed in this sample because the interiors displayed evidence of

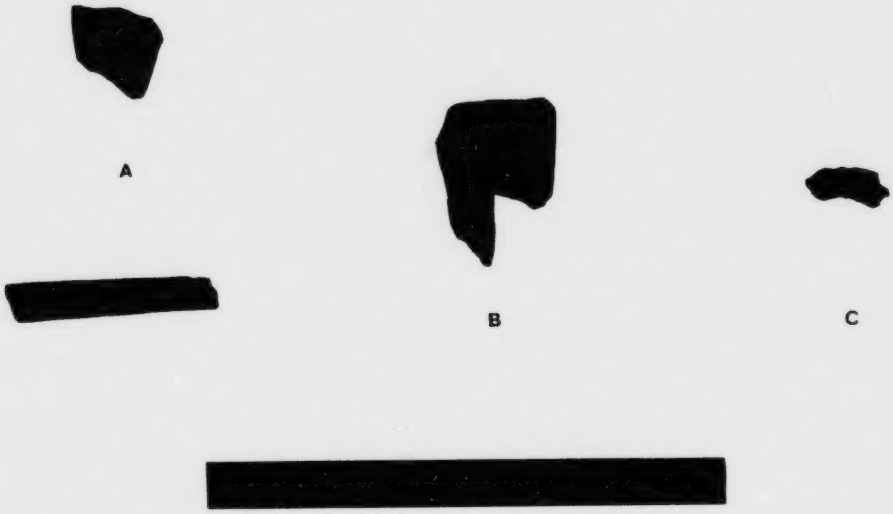

FIGURE 67 Tobacco Pipes.
(a) Kaolin
(b) Coarse earthenware
(c) Stoneware

being heated, i.e., interiors blackened while the exterior was not. The material types were further subdivided into stems and bowls.

Type 1.0 White Kaolin

Subtype 1.1 Bowls

There were 15 fragments recovered and these ranged in lengths from 0.80 cm to 2.81 cm. Only three were diagnostic. The first was a concave fragment with the letters "C-A-M-E" above the letters "A-P-A-R" (Fig. 68a). These could possibly be the mark of Cameron, a late nineteenth century pipe manufacturer from Glascow, Scotland (Walker 1977:1006-1007).

The second fragment appears to have been burned on the outside, obscuring the trademark (Fig. 68c). The mark appears to be a capital "D" within a double lined circle. This is probably a TD pipe of which the manufacturer is unknown. It closely resembles a pipe obtained at Kipp's Post, North Dakota, occupied from 1826 to 1831 (Woolworth and Wood 1960).

One other bowl fragment displayed a deep linear incision parallel to the rim of the bowl that appears to be purposely cut (Fig. 68b). Pipe bowls with this feature were also recovered at Kipp's Post (Woolworth and Wood 1960:239-305, Plate 61).

Of the 15 bowl fragments, 8 were recovered in the features. Five bowl fragments were from Feature 1 through a vertical distance of 10 cm to 92 cm. Feature 2 contained two kaolin bowl fragments and these were recovered within the upper 20 cm. The "TD" bowl was recovered from this area.

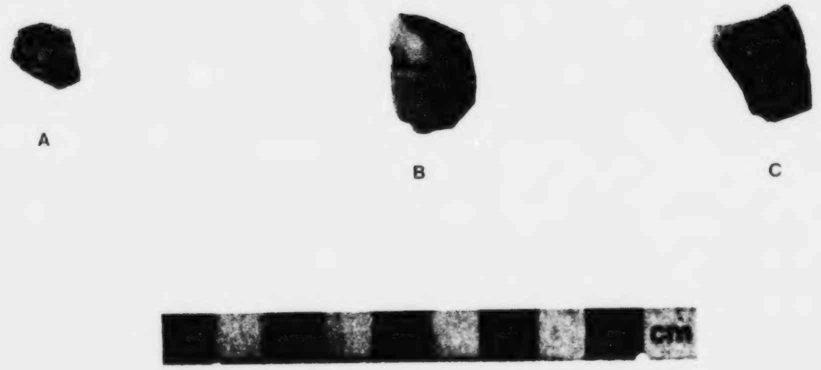

FIGURE 68 Bowl fragments.
(a) "Came- Apar-"
(b) Incised line
(c) Portion of "TD"

Feature 3 produced one fragment at a depth of 69 cm.

Sub-type 1.2 Stems

Five stem fragments were recovered from the surface. They ranged in length from 1.50 cm to 3.96 cm and bore diameters were between 0.16 cm and 0.18 cm. Only one of the stems was diagnostic. This fragment retained a heel displaying an "I" on the left side and an "F" on the right (Fig. 69). In addition, there were obliquely oriented ridges curving toward the bowl. The trademarks indicated that the pipe was made by John Ford and Company. There were two John Ford companies exporting pipes during the last half of the nineteenth century and both used the same marking on the pipe heels. The first manufacturer was located in Stepney, England, and is listed as exporters from 1856 to 1877 and again from 1880 to 1909 (Walker 1971:23). The second exporter was from Pentonville, England, and operated between 1836 and 1865. Each had the company name and place of manufacture stamped on the bowl (Walker 1971:23). No associated bowl was found and it is not known which manufacturer made the pipe from the Garden Site. A pipe bowl, similar to the above, was recovered at the Tailrace Bay Site and was the John Ford, Stepney variety (Mayer-Oakes 1970:287-288).

The stem fragments, all of which are surface recoveries, were too modern to apply any kind of dating techniques using bore sizes, as has been done elsewhere (Harrington 1954; Binford 1961).

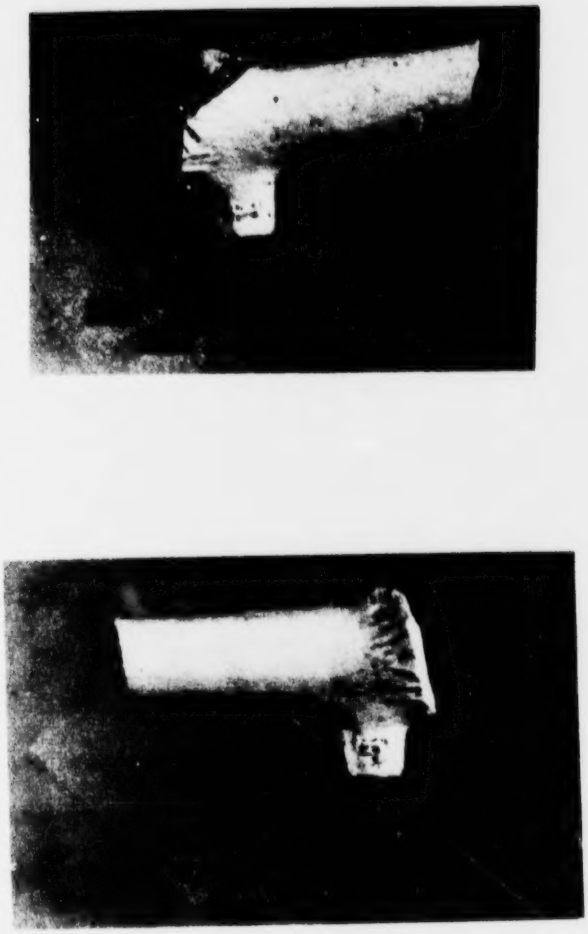

FIGURE 69 Pipe stem heel with John Ford mark.

Type 2.0 Red Earthenware

These are made of coarse earthenware and appeared to be unglazed (Fig. 67b). They were red-orange in colour and from the bowl section of the pipe. Its possible that these are sub-stemmed pipes.

Four fragments were recovered ranging from 1.16 to 2.67 cm in length and from 0.30 cm to 0.36 cm in thickness. A seam was present on three fragments, indicating that the pipes were cast.

Only one was found *in situ* and this was in the upper layers (15 to 20 cm) of Feature 2.

Type 3.0 Brown Stoneware

There were three fragments placed in this category (Fig. 67c). They may either represent a small ceramic stoneware jar or portions of a pipe. They are included here because one of the three exhibited a blackened interior, suggesting that something had been burned in it. The circumference of the fragments suggested that it was a pipe.

The length of the fragments ranged from 0.67 cm to 1.05 cm. Two were possible bowl fragments while a third could have been from the heel.

One of these fragments was recovered from the bottom of Feature 1, a second from the surface of Feature 2, and the third from the upper strata of Feature 3.

Discussion

The one identifiable trademark dates from 1835 to 1877. This represents quite an extensive temporal span and is coincidental with the known dates of occupation. Since the site was occupied for a lengthy period of time, a larger amount of pipe fragments in situ would be expected. This assumes that they were discarded in the refuse pits and that all the refuse pits were found. On the basis of the fragments, there are only four or five pipes accounted for. Because little is known of the recovery from other contemporaneous Metis sites, no comparisons can be made. However, one would certainly expect to find more smoking equipment on a farmstead occupied for over 20 years. It may be possible that the original founder of the homestead did not smoke or began smoking later in life, or perhaps one of the offspring took up the habit when he or she reached maturity.

Clothing and Ornamentation

Buttons

Introduction

A total of 53 buttons were recovered -- 18 from Feature 1, 22 from Feature 2, five from Feature 3, and eight from the surface and test excavations. Buttons were divided on the basis of material and subdivided on the basis of manufacturing or morphological differences. The classification and dimensions of the buttons are summarized in Table 30.

TABLE 30

Quantitative Button Data

Button type	Diameter & Mean (cm)		Eyelet & Mean Diameter (cm)		Thickness & Mean (cm)		Number
1.0 Bone							
1.1 Plain polished (small)	1.44-1.47	1.46	0.16-0.18	0.17	M	M	2
1.2 Plain polished (large)	1.87-1.92	1.89	0.18-0.23	0.20	M	M	4
1.3 Plain polished (large eyelet)	1.66-1.95	1.87	0.24-0.35	0.29	M	M	5
1.4 Stained	1.87-1.98	1.91	0.21-0.27	0.22	M	M	5
2.0 Porcelain							
2.1 Plain (convex/flat)	1.11-1.14	1.12	M	M	0.29-0.33	0.31	6
2.2 Plain (shallow convex/flat)	1.00		M	M	0.30		1
2.3 Painted	1.11-1.13	1.12	M	M	0.43-0.45	0.44	2
2.4 Opaque with shank	1.00		M	M	0.62		1
3.0 Metal							
3.1 Plain brass (spun)	2.04-2.09	2.06	0.43-0.55	0.51	0.11-0.15	0.13	5
3.2 Stamped brass	2.52		0.41		0.16		1

M = Not Measurable

Table 30, continued

Button type	Diameter & Mean (cm)		Eyelet & Mean Diameter (cm)		Thickness & Mean (cm)		Number
3.0 Metal (continued)							
3.3 Stamped brass (sunken panel)	1.33		M		0.08		1
3.4 Large stamped (sunken panel)	1.67		M		0.10		1
3.5 Two-piece pressed (four-holed)	1.73-1.74	1.74	M		0.24-0.36	0.30	2
3.6 Hollow (loose eye)	2.20		M		0.34		1
3.7 Hollow (bar eye)	1.67-1.71	1.69	M		0.27-0.33	0.30	2
3.8 Hollow (bar eye)	1.72-1.80	1.77	M		0.38-0.61	0.41	4
4.0 Shell							
4.1 Outer shell	0.92		0.12		0.23		1
4.2 Mother of Pearl (flat/concave)	1.09		0.13		0.23		1
4.3 Mother of Pearl (concave)	0.74-1.00	0.94	0.12-0.21	0.15	0.07-0.13	0.10	6
4.4 Mother of Pearl (designed)	0.97		0.08		0.19		1

M = Not Measurable

Type 1.0 Bone

Sub-type 1.1 Plain Polished (small). There are two specimens of this type and they are commonly found on most historic sites. Bone buttons can date from the mid-1700s (South 1963) and have been found at historic sites dating to the early 1900s (McLeod 1982). South dates this type from 1837 to 1865 (Noel-Hume 1970:90). They are disc-shaped and concave in longitudinal cross-section.

The two buttons of this type have an average diameter of 1.46 cm and an average eye diameter of 0.17 cm (Fig. 70a). One button was recovered from the upper strata of Feature 1 and the second from the upper levels of Feature 3.

Sub-type 1.2 Plain Polished (large). These are the same morphologically as the above, but have an average diameter of 1.89 cm and an average eye diameter of 0.20 cm (Fig. 70b). They may have served a different function on garments than the smaller buttons. There are four buttons of this type. Feature 1 contained one in the upper levels and one in the lower. Feature 2 had one in the lower strata and Feature 3 had one in the upper.

Sub-type 1.3 Plain Polished (large eyelet). There are five of these, with an average diameter of 1.87 cm and an average eye diameter of 0.29 cm (Fig. 70c). One was found in the lower levels of Feature 1 and the remainder in the mid to lower levels of Feature 2.

Sub-type 1.4 Polished (stained). There were five of these found and all had a brown varnish over the entire button (Fig. 70d).

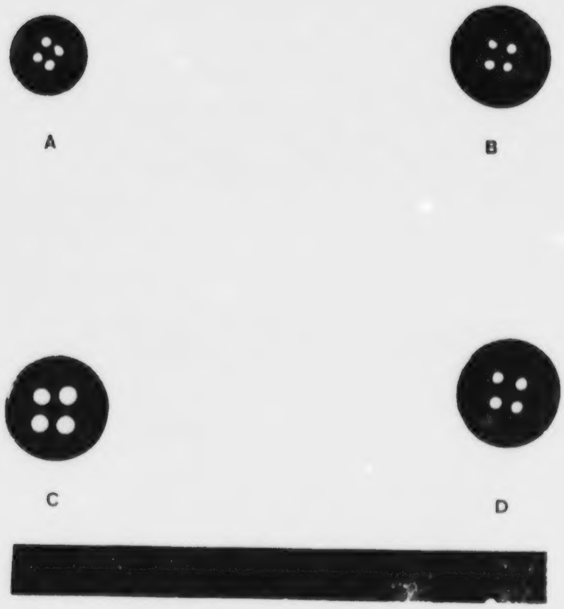

FIGURE 70 Bone button types
(a) Type 1.1 Plain polished, small
(b) Type 1.2 Plain polished, large (small eyelets)
(c) Type 1.3 Plain polished, large eyelets
(d) Type 1.4 Plain polished, stained

Initially, it was assumed that the staining was derived from the soil; however, unstained buttons were also recovered in the same soil zones. In addition, the staining appears worn through on several of the button rims.

The stained buttons had an average diameter of 1.91 cm and an average eye diameter of 0.22 cm. One was recovered in the upper layers of Feature 1, two in the lower portions of Feature 2, and three in the upper areas of Feature 3.

Type 2.0 Ceramic

Ceramic buttons are another type frequently recovered at historic sites, and are poor chronological markers. Those from DkLg-16 are made of porcelain and are subdivided according to morphological and decorative characteristics.

Sub-type 2.1 Plain (concave/flat). This type consisted of six white four-holed buttons with concave faces and flat backs (Fig. 71a). The average diameter of this type was 1.12 cm with the thickness averaging 0.31 cm. One button was recovered from the middle of Feature 1, and three from the lowest levels of this same feature. Two were recovered from the upper levels of Feature 2. No ceramic buttons were recovered in Feature 3.

Sub-type 2.2 Plain (shallow concave/flat). One white four-holed button had a shallow concave front and a flat back (Fig. 71b). Its outer diameter was 0.10 cm, the inner diameter was 0.35 cm, and

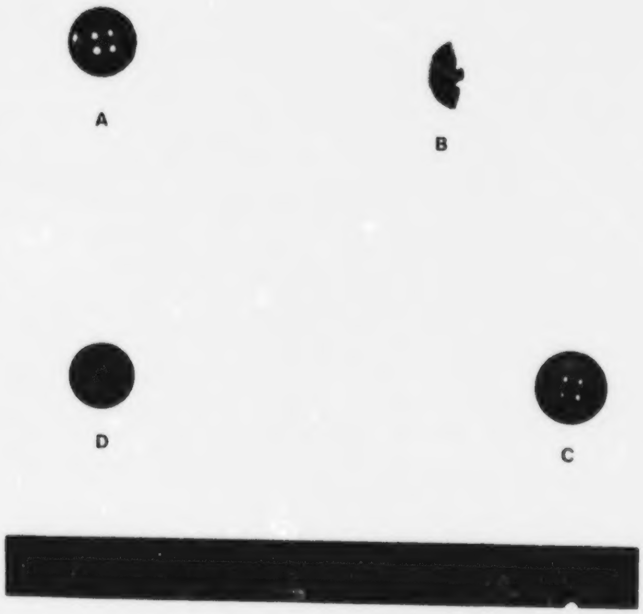

FIGURE 71 Ceramic button types
(a) Type 2.1 Concave/flat
(b) Type 2.2 Shallow concave/flat
(c) Type 2.3 Painted
(d) Type 2.4 Coloured

the thickness was 0.30 cm. It was recovered from the lowest level of Feature 1.

Sub-type 2.3 Painted. Two buttons with flat rims, steep concave centres and flat backs were recovered. The flat rim section was painted red-orange (Fig. 71c). Average diameter was 1.12 cm and average thickness 0.44 cm. One was recovered from the middle levels of Feature 1 and the other came from the surface of Feature 2.

Sub-type 2.4 Coloured (convex/shank). The single specimen in this category was an opaque grey, dome-shaped button with a metal shank attachment on its back (Fig. 71d). The button was 1.00 cm in diameter and 0.62 cm thick, the shank was 0.40 cm wide, and the oriface of the shank was 0.16 cm wide. The button was recovered from the surface.

Type 3.0 Metal

The most diagnostic of the buttons, in terms of dating, are metal (Olsen 1963; South, in Noel-Hume 1976). However, in Western Canada, the dates suggested by Olsen and South for these buttons were usually earlier than evidence from the sites would indicate (Bonnichsen, et al. 1973:73). The same situation exists at the Garden Site. For example, several "spun back" buttons were recovered, and according to Olsen and South these suggest dates from 1760 to 1785 (Olsen 1963:553). This is contrary not only to other artifact dates but also to the historical documentation as well (see Chapter 3).

Sub-type 3.1 Plain brass (spun back). Buttons of this type (Fig. 72a) correspond to South's Type 7 and Olsen's Type D and date from 1760-1785 (Olsen 1963:553). There were five of these and their diameters averaged 2.06 cm. The average thickness was 0.13 cm, the average width of the eye is 0.51 cm, and the opening is 0.27 cm. One was from the upper levels of Feature 1, while two were from Feature 2 -- one from the upper strata and one from the lower. Two were collected from the surface.

Sub-type 3.2 Stamped brass. A single button was found which corresponds to South's Type 18 and dates from 1800 to 1830 (Noel-Hume 1970:90). The button had a diameter of 2.52 cm, a thickness of 0.16 cm, an eye diameter of 0.72 cm and an eye opening of 0.41 cm. The back surface displayed "Rich Imperial Colour" (Fig. 72b). The button was recovered from the surface.

Sub-type 3.3 Small stamped brass (sunken panel). One button of this sub-type was recovered. It resembles South's Type 32 which dates from 1837 to 1865 (Noel-Hume 1970:90). The button was decorated with a row of small bosses encircling the inner diameter of the rim (Fig. 72c). The total diameter was 1.33 cm and the thickness was 0.08 cm. The button was recovered from the surface of Feature 2.

Sub-type 3.4 Large stamped brass (sunken panel). This single button also resembles South's Type 32 and has the same relative dates. This type has the manufacturing marks "F AND B LONDON" on the back (Fig. 72d). Its diameter was 1.67 cm and the thickness 0.10 cm. It was recovered from the surface.

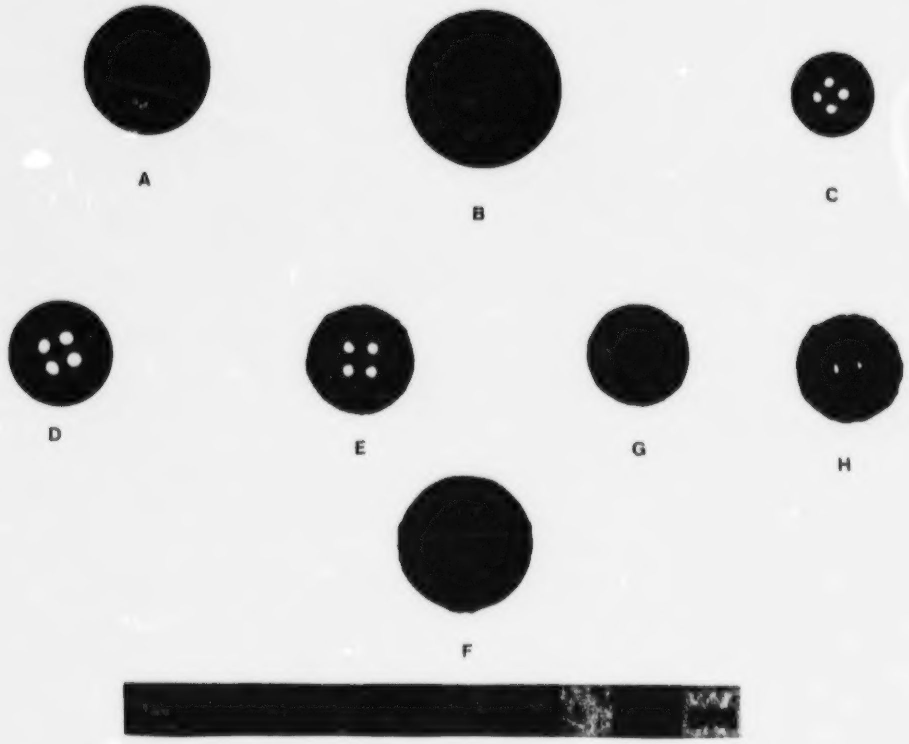

FIGURE 72 Metal buttons
(a) Type 3.1 Plain brass (spun back)
(b) Type 3.2 Stamped brass
(c) Type 3.3 Small stamped brass (sunken panel)
(d) Type 3.4 Large stamped brass (sunken panel)
(e) Type 3.5 Two-piece pressed steel
(f) Type 3.6 Hollow (loose iron eye)
(g) Type 3.7 Hollow (bar eyed/stamped)
(h) Type 3.8 Hollow (bar eyed/pressed metal)

Sub-type 3.5 Two-piece pressed steel (four-hole). Two buttons which resembled South's Type 21 and Olsen's Type L, possibly dating from 1837 to 1865 (Noel-Hume 1970:90) or post-1870 (Olsen 1963:553) were obtained. The diameter of these averaged 1.74 cm, with a thickness of 0.30 cm (Fig. 72e). One was recovered from the upper levels of Feature 2, the other was a surface recovery.

Sub-type 3.6 Hollow (loose iron eye). One button was recovered and the eye was set in a depression on the back surface. The button was covered with what appeared to be cotton cloth (Fig. 72f), and bears a resemblance to South's Type 24 which dates from 1837-1865 (Noel-Hume 1970:90). Its diameter was 2.20 cm and was 0.34 cm thick. It was recovered from the middle portion of Feature 3.

Sub-type 3.7 Hollow (bar eye/stamped). Two stamped copper buttons with bars in the centre for garment attachment were recovered. The word "Trade" was inscribed on the face, as were two symbols (Fig. 72g). One appeared to be an axe or tomahawk, while the other is composed of two ovals intersecting at right angles with lines extending outward from the points of intersection.

Sub-type 3.8 Hollow (bar eye/pressed metal). Four of these buttons were recovered. They appeared to be manufactured from two concave, pressed metal pieces which, when affixed to each other, produced a hollow button (Fig. 72h). A metal wire, attached across the opening in the corner, forms the eyelets. The face of one button was covered by black paint.

One hollow button was found in the lower strata of Feature 1, two were from the middle levels of Feature 2 and one was recovered in the middle levels of Feature 3.

Type 4.0 Shell

Shell buttons are another variety of fastener usually found on historic sites. Most of the shell buttons at the Garden Site were made of mother-of-pearl, an opalescent substance from the inner shell of large molluscs.

Sub-type 4.1 Plain shell. This button was made of the outer portion of the shell (Fig. 73a). The single specimen of this type had a diameter of 0.92 cm, a thickness of 0.23 cm and an eye diameter of 1.20 cm. It had four holes for garment attachment and was recovered in the lower levels of Feature 2.

Sub-type 4.2 Mother-of-Pearl (flat/concave). This button was comparable to South's Type 22 which dates from 1800-1830 (Noel-Hume 1970:90). It had a flat rim and a concave interior (Fig. 73b). The diameter was 1.09 cm, the thickness was 0.23 cm and the average eye diameter was 0.13 cm. It was recovered from the surface.

Sub-type 4.3 Mother-of-Pearl (concave). This category contains six buttons also resembling South's Type 22 (Fig. 73c). Their average diameter was 0.94 cm, the average thickness was 0.15 cm and the average eye opening was 0.10 cm. One was recovered from a

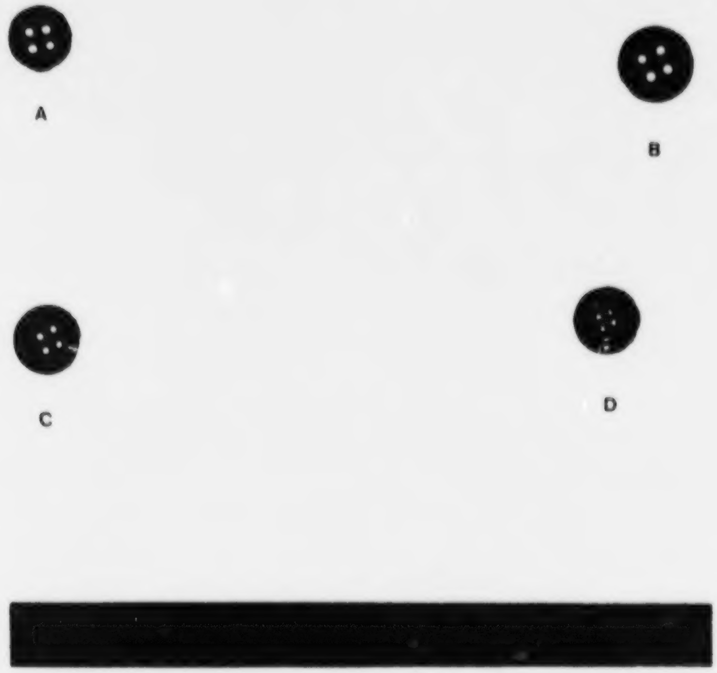

FIGURE 73 Shell button types
(a) Type 4.1 Plain shell
(b) Type 4.2 Mother-of-pearl (flat/concave)
(c) Type 4.3 Mother-of-pearl (concave)
(d) Type 4.4 Mother-of-pearl (decorated)

test excavation, two were recovered from the mid-levels of Feature 1, and the remainder from the surface and middle and lower levels of Feature 2.

Sub-type 4.4 Mother-of-Pearl (decorated). The decoration consisted of angular lines extending from the outer rim of the button and a row of punctates around the inner portion of the rim (Fig. 73d). Its diameter was 0.97 cm. It was 0.19 cm thick, with an average eye diameter of 0.08 cm. The button was found in the mid-levels of Feature 1.

Discussion

Several dates may be obtained from the buttons recovered at the Garden Site. The type that corresponds most closely with the historical documentation of this site are the bone buttons that dated between 1837 and 1865. Using all of the datable buttons from DkLg-16, a "mean button date" can be calculated in much the same manner as South's mean ceramic date discussed earlier (Table 31).

The resultant mean date is 1832.2 and is considerably earlier than the known dates of occupation obtained from historical information. The spun back buttons (Type 3.1) are the cause, due to the considerably early mean date of this type. This perhaps indicates a need for revising the established dating schemes of Olsen and South thereby making the dating of buttons by their form more applicable to Western Canadian historic sites.

TABLE 31

Mean Button Date

Button Type	Mean Date	x_i	Button Count	Product
1.1	1851	851	2	1702
1.2	1851	851	4	3404
1.3	1851	851	5	4255
1.4	1851	851	5	4255
3.1	1773	773	5	3865
3.2	1815	815	1	815
3.3	1851	851	1	851
3.4	1851	851	1	851
3.5	1870	870	2	1740
3.6	1851	851	2	1702
4.2	1815	815	1	815
4.3	1815	815	6	4890
4.4	1815	815	1	815
		TOTAL	36	29960

$$\text{Mean Date} = \frac{29{,}960}{36} + 1000 = 1832.2$$

It is not known what clothing articles the buttons represent. The bone and metal specimens are probably from men's clothing while the procelain and shell buttons could be from either men's or women's garments. If button type is indicative of clothing type, then it would seem that several garments are represented, as the 53 buttons recovered could be divided into 20 sub-types. This could be a function of either (1) several garments being represented, or (2) that buttons were reutilized, thereby reducing their frequency in refuse middens.

Table 32 shows vertical and horizontal distribution of common button types among the features. The number of buttons recovered in Features 1 and 2 were similar; however, considerably fewer came from Feature 3. Feature 1 contained concentrations at the top, middle and bottom levels, which suggests interrupted utilization of the feature. Feature 2 had most of its sample concentrated in the lower levels while the third feature had its sample located in the upper strata. It is therefore possible that Feature 3 was used in a different manner and for a different purpose than were Features 1 and 2.

Like the ceramics, the long temporal range of the button types make it difficult to compare feature levels. The only means of doing this is by identifying common types occurring between feature levels (Table 32).

Only three button types were common to all three features. The upper portions of Feature 1 could correspond to the lower strata of Feature 2 and the upper strata of Feature 3. The lower levels of Feature 1 could be related to both lower levels of Features 2 and 3.

Of the types common to only two features, a common type occurs between the upper strata of Feature 1 and Feature 3. The mid-portion of Feature 1 had types common with the surface and the mid to bottom levels of Feature 2. The bottom of Feature 1 also had types in common with the top of Feature 2. Distribution of common button types was similar to the distribution of common ceramic types, and it is probable that the same explanation for discrepancies among the ceramics is applicable to the buttons.

TABLE 32

Distribution of Button Types Common to
Two or More Features

Sub-type	Feature 1 Level	Feature 2 Level	Feature 3 Level
1.1	3	-	1
1.2	6 & 23	13	2
1.3	16	8, 10 & 16	-
1.4	4	14	2
2.1	23 & 24	sfc. & 5	-
2.3	9	sfc.	-
3.1	4	4 & 14	-
3.6	9	8	-
3.7	16	sfc.	-
3.8	24	12 & 13	9
4.3	6 & 10	sfc., 9 & 16	-

NOTE: sfc. = surface

BEADS

Introduction

The objectives of the bead analysis were (1) to compare and contrast the three features through vertical placement and number of beads, and (2) since the beads represent a cognizance of style by the site occupants, to obtain an indication of how the Beauchamps participated in the sphere of garment fashion through the beads they preferred and purchased.

A total sample of 546 beads was obtained from the site, all of which were recovered by excavation. Analysis of the beads involved dividing the sample into the three features from which they came and then analyzing each assemblage in terms of manufacturing technique. The manufacturing techniques outlined below are based on Kidd and Kidd (1970). Several bead types were recovered from the Garden Site that were similar to those discussed by Kidd and Kidd.

Bead Manufacturing Processes

Type 1 Hollow Cane Drawn

These were produced by introducing an air bubble into molten glass with a tube and attaching a rod to the other end of the glass. The molten glass was then pulled in opposite directions, thereby producing a long, hollow cane of molten glass. When cooled, this cane was cut into smaller pieces of varying lengths, producing beads. Variations on this procedure facilitate the production of several bead types. For example, two coloured layers can be contained within the molten bubble and, when drawn, beads having two separate colours are created. Another technique was used to modify the drawn bead. This involved placing sand grains in the bores of rough cut beads. The beads were re-heated and tumbled, producing round beads with smooth surfaces. An example of this type is the small seed bead.

Drawn beads may be identified by the presence of longitudinally elongated air bubbles that result when the molten glass is pulled.

Type 2 Wire Wound

This manufacturing process involved winding molten glass around a length of wire, the latter being covered with a chalky material in order to facilitate removal. When the glass cooled, the wire was removed and the tube of glass cut in the same manner as the drawn beads. There can be additional procedures used to create a variety of bead shapes similar to that for the drawn beads. Spiralling lines within the body of a specimen, or an air bubble in an equitorial arrangement within the glass matrix, indicates that a bead has been wound.

Type 3 Cast

Based on evidence from the Garden Site, these beads were made in a two-part cast; however, there is no evidence of a mold mark present on those recoveries.

Bead Description

Feature 1

Sub-type 1.1 Hollow cane drawn: unmodified. There were two black beads of this type (Fig. 74a). Both were recovered in the middle areas of the feature.

Sub-type 1.2 Hollow cane drawn: modified by re-heating and tumbling. There were 170 in this category (Fig. 74b). The sample was divided into (1) seed beads (with a diameter of less than 0.20 cm), (2) intermediate beads (having a diameter of 0.20 cm to 0.30 cm), and (3) pony beads (with a diameter greater than 0.30 cm). This sample contained 166 seed beads, three intermediate beads and one pony bead. The beads were concentrated in three, vertically distinct zones within the feature: 40 cm to 50 cm, 85 cm to 100 cm, and 100 cm to 120 cm.

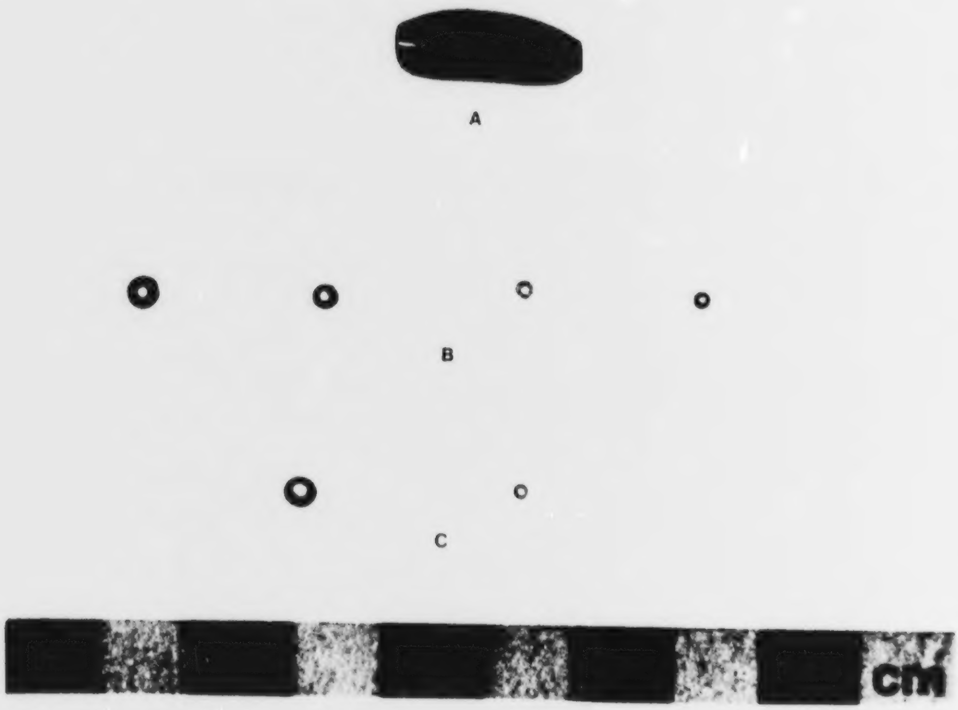

FIGURE 74 Hollow cane drawn beads.
(a) Type 1.1 Unmodified
(b) Type 1.2 Re-heated and tumbled
(c) Type 1.2.1 Layered red with white

This corresponds to the three depositional events suggested by the stratigraphy.

Sub-type 1.2.1 Hollow cane drawn: modified by re-heating and tumbling: red with white opaque core. These are known as the "Cornaline d'Allepo" beads (Fig. 74c). There was a total of seven recovered in Feature 1, five seed and two intermediate. The intermediate beads were recovered from the middle level, whereas the seed beads were recovered from the bottom.

Sub-type 2.1 Wire wound: modified by re-heating and tumbling. There were six pony beads recovered; five were bright blue and one was black (Fig. 75a and c). The blue beads were recovered in the upper and middle levels, while the black bead was from the bottom of the feature.

Sub-type 3.1 Molded. Four large red beads were recovered, one of which was split vertically in half (Fig. 76). The bore of these beads was tapered. The exterior surface was frosted and covered with crescentic cracks, likely resulting from being struck together during sand blasting. They were recovered from the upper to middle levels of the feature and may be associated with the bright blue beads (Type 2.1).

Feature 2

Sub-type 1.2 Hollow cane drawn: modified by re-heating and tumbling. There was a total of 312 beads of this type recovered in Feature 2; 305 were seed size, five were intermediate and two were

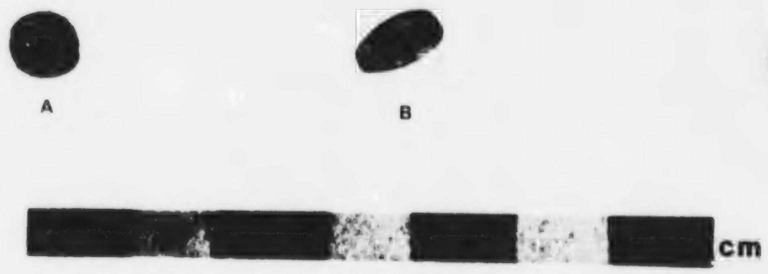

FIGURE 75 Wire wound beads
(a) Type 2.1 Bright blue
(b) Type 2.2 Clear
(c) Type 2.1 Black

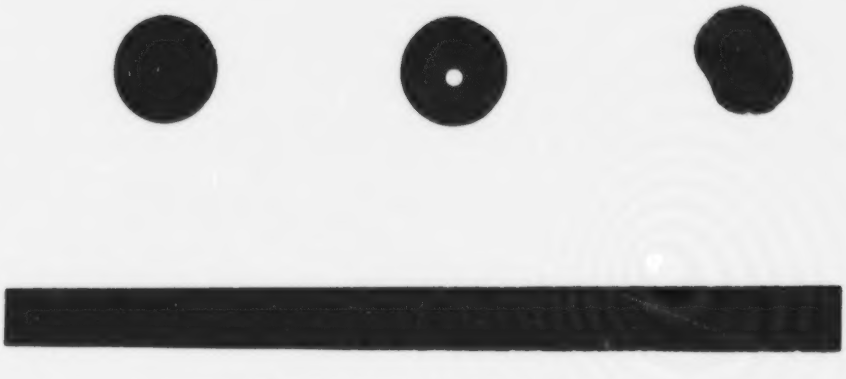

FIGURE 76 Moulded beads.

pony. The most noticeable concentration was in the 60 to 90 cm zone where a total of 303 or 99% of the sample was recovered. In particular, 158 white opaque beads were obtained in the 70 to 75 cm zone and were probably from a single strand.

Sub-type 1.2.1 Hollow cane drawn: modified by re-heating and tumbling: layered red and white. There was a total of 31 recovered, all in the bottom 45 cm of the feature. Of these, 30 were seed size and one was a pony bead.

Sub-type 1.2.2 Drawn: re-heated and tumbled: layered red and brown. One intermediate size bead was found in the 65 to 70 cm level.

Sub-type 1.2.3 Drawn: re-heated and tumbled: layered red and black. One intermediate bead was recovered from the 75 to 80 cm level.

Sub-type 2.1 Wire Wound: re-heated and tumbled. A single, oval, frosted clear bead of pony size was recovered at 57 cm (Fig. 75b).

Feature 3

Sub-type 1.1 Drawn: unmodified. A single, bright blue, pony-sized bead from 54 cm was found.

Sub-type 1.2 Drawn: re-heated and tumbled. A total of eight were recovered: seven seed and one intermediate.

Unassociated with Features

Sub-type 1.2 Drawn: re-heated and tumbled. There were two recovered; a shadow blue pony-sized bead and a pink seed bead. The pony bead was recovered in a test unit located between Features 2 and 3, and the seed bead came from a test trench near Feature 2.

There were 24 beads which, due to breakage during excavation, could not be analyzed.

Discussion

In general, there seems to have been a preference for white and pink beads (Table 33). Respectively, these make up 33% and 21% of the sample, and 54% collectively. Feature 2 contained 63% of the total sample, Feature 1 had 21%, and 2% were recovered in Feature 3.

The beads probably represent garment decorations that were lost and swept up with household trash. The concentration in the bottom of Feature 2 may have resulted from a major house-cleaning exercise. The three separate concentrations found in Feature 1 may also represent times of major cleaning operations. On the other hand, the concentrations in Feature 2 may represent a longer period of time when this area was used as a refuse dump.

The small number of beads recovered makes it difficult to state how they may reflect the dress of the period. Beads were always a popular trade item as evidenced by the large numbers found cached at trade posts (Noble 1973:143). It may be possible, with better documentation, to determine something of the socio-economic status of a site's occupants based on frequency and kind of trade beads. For example, if the price of specific beads were determined and a relatively high quantity of the more expensive varieties were found in a habitation site, it could be inferred that the occupants may have

TABLE 33

Summary of Bead Colours

	Seed Size		Larger		Total	
Colour	Count	%	Count	%	Count	%
White	178	39.8	3	9.4	181	33.3
Pink	113	22.1	4	12.5	117	21.3
Bright Blue	58	11.3	5	15.6	63	11.6
Cornaline	35	6.8	3	9.4	38	7.1
Aqua	36	7.0	1	3.1	37	6.8
Red	25	4.9	6	18.8	31	5.8
Shadow Blue	18	3.5	4	12.5	22	4.1
Apple Green	16	3.2	1	3.1	17	3.2
Turquoise	16	3.2	0	0.0	16	2.9
Amber	9	1.8	1	3.1	10	1.8
Cinnamon	5	1.0	0	0.0	5	0.9
Black/green	0	0.0	3	9.4	3	0.6
Emerald	1	0.2	0	0.0	1	0.2
Red/black	0	0.0	1	3.1	1	0.2
Clear	1	0.2	0	0.0	1	0.2
TOTAL	511	100.0	32	100.0	543	100.0

been "well to do". A case in point is the anomalous molded red beads from the Garden Site. They may represent an expensive bead as opposed to the more common seed beads. If so, then since there are only a few of the former they may have functioned as "luxury" goods. Another fruitful line of research may involve determining what bead types were preferred in St. Norbert during the middle 1800s and comparing that with what was recovered at the Garden Site (Spector 1976). In this way, the archaeological data may be used to suggest the economic status of the site's occupants. Perhaps as future work is done, either at this particular locus or at other homestead sites, more conclusive economic statements may be made concerning the inhabitants based on the kinds and quantities of beads found there.

Pins

A total of 16 pins were recovered, all from the excavations. Their mean length was 3.04 cm with a range of 2.90 to 3.20 cm. The average head diameter was 0.17 cm, with a range of 0.15 to 0.20 cm. The pins were made of brass and appeared to be of one piece (Fig. 77a). Several pins displayed evidence of silver plating, and it is possible that they were all so plated at one time.

Feature 2 contained 69% of the sample, with a noticeable density at the 60 cm to 90 cm levels. These occurred in conjunction with the bead concentration mentioned above. Feature 1 had the remaining 31%, with single pins at 20 cm, 50 cm and 75 cm and two at 120 cm.

Leather

There were five pieces of leather recovered; three from the surface, one from a shovel pit, and one from Feature 1. Of the five, three were heel fragments representing two kinds of footwear; one was a portion of the eyelet row; and the last piece was a portion of a sole. Shoes can be a source of chronological information, and a sequence based on manufacturing techniques has been devised elsewhere (Anderson 1968:56-65).

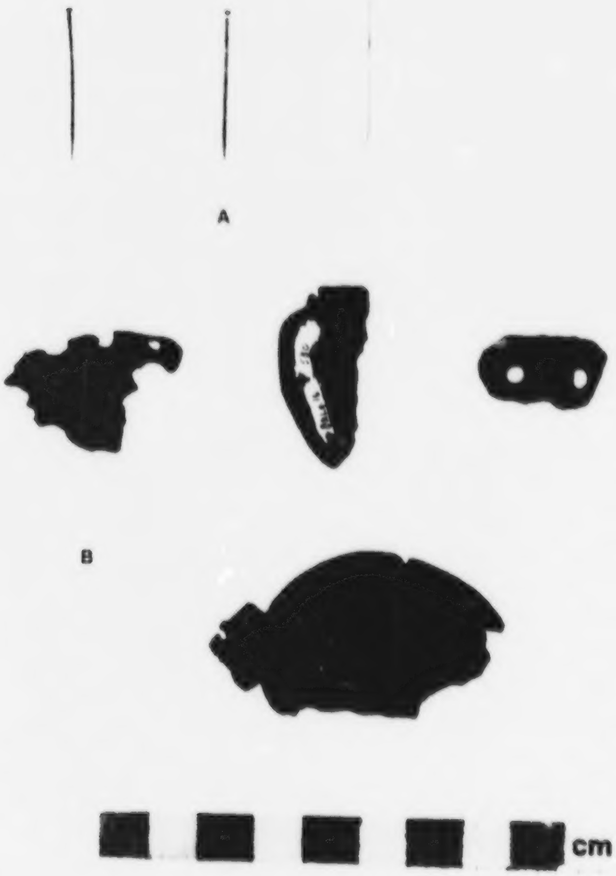

FIGURE 77 Clothing artifacts
(a) Straight pins
(b) Shoe fragments

The largest heel portion came from the surface and consisted of a hard leather bottom nailed to a softer upper (Fig. 77b). The nails were small, square and machine-cut. The heel, measuring 4.0 cm long by 4.5 cm wide, could have been from a child's or juvenile's shoe. The heel was probably made with a table nailing machine dating sometime after 1862 (Anderson 1968:59). The smaller heel portion measured 0.30 cm long by 0.25 cm wide. It appears to have been manufactured in the same fashion as the more complete heel.

The eyelets were recovered at 104 cm in Feature 1 and it is difficult to determine whether they are from a lady's highlaced shoe or a man's work boot. The eyelets had a diameter of 0.50 cm.

The sole portion was found in a shovel test at the northern end of the garden. It appeared to be from a gum rubber boot.

Miscellaneous Metal Artifacts

Two metal fasteners were recovered, and both were the eye portion of a hook-and-eye closure (Fig. 78a and f). One eye was fairly large (1.8[illegible] cm) and was found in Feature 1 at a depth of [illegible] cm. The second was approximately 1.0 cm long and was obtained at a depth of [illegible] cm in Feature 1.

A metal crucifix measuring 2.70 cm long, 2.[illegible] cm wide and 0.1 cm thick was found in Feature 1 at a depth of 10[illegible] cm. It was made of iron and was quite corroded (Fig. 78[illegible]). There may have been some type of central decoration at one time and a hole was present for chain attachment.

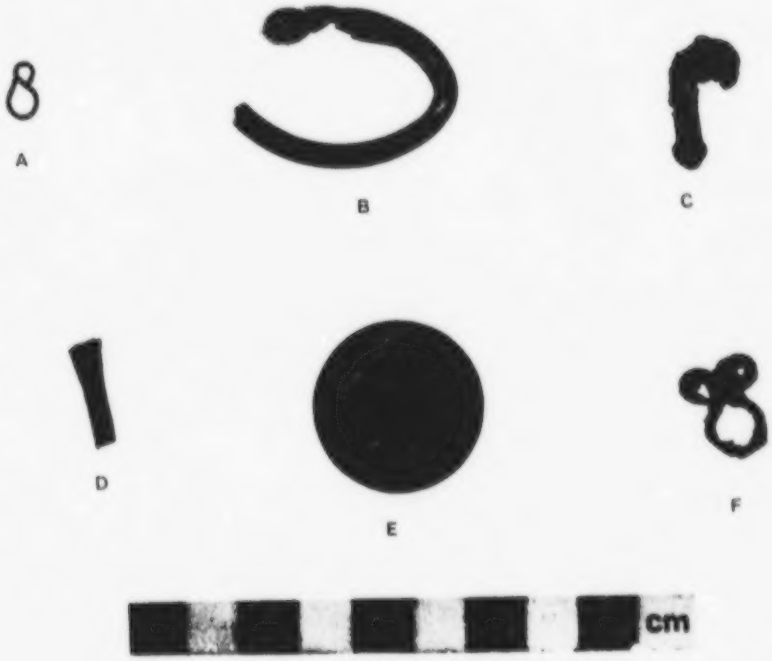

FIGURE 78 Miscellaneous metal clothing and ornament artifacts.
(a) Small eye fastener
(b) Key-wind watch case
(c) Iron crucifix
(d) Jew's harp fragment (?)
(e) British half-penny (1806)
(f) Large eye fastener

An 1806 British half-penny was found in Feature 3 at a depth of 15 cm (Fig. 78e).

The rim of a silver, key-wound pocket watch was recovered on the surface. The face of the watch would have been approximately 3.5 cm in diameter (Fig. 78b).

Hunting and Subsistence

Gunflints

Four gunflints were recovered, three from the surface and one from Feature 2 at a depth of 75 cm. All were of a brown/black translucent flint and, because of their manufacture and colour, are probably English (Fig. 79). All but the excavated specimen displayed a great deal of edge battering and wear. The flints ranged from 1.97 cm to 2.23 cm long; 1.86 cm to 2.35 cm wide, and 0.48 to 1.02 cm thick. The bevel length ranged from 0.97 to 1.33 cm and the bed length from 0.45 cm to 0.99 cm. These flints were probably for use in a pistol (Woodward 1960:34).

Percussion Caps

A total of four percussion caps was excavated and only one was complete (Fig. 80c). The average length was 0.53 cm, with a range from 0.49 cm to 0.56 cm. One was obtained in Feature 1 at a depth of 70 cm below the surface. The remainder all came from the lower half of Feature 2. The one complete cap appears to have been unused.

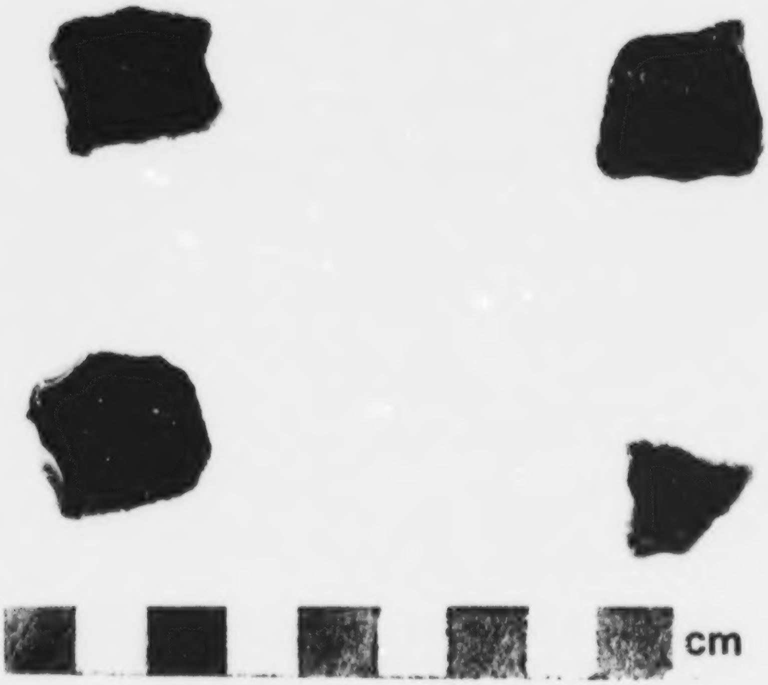

FIGURE 79 Gunflints.

FIGURE 80 Hunting and subsistence artifacts.
(a) Number 4 shot
(b) Number 1 shot
(c) Percussion cap
(d) Musket balls
(e) Lead sinker

Lead Musket Balls

Three of these were recovered, of which two were complete (Fig. 80d), and were obtained from the excavations. The incomplete ball appears to have been sliced in half. The two complete specimens both displayed the casting nipple, which suggests that they had not been used. Their average diameter is 1.42 cm (.550 cal. and .570 cal.). Measurements were taken perpendicular to the casting nipple. The one of smaller calibre was located in the upper levels of Feature 2, while the larger ball was recovered from the upper levels of Feature 3.

Gunlock

A complete gunlock from a flintlock musket was recovered from the lower levels of Feature 2. Based on its general appearance, it is probably of English manufacture (Fig. 81). Unfortunately, corrosion has obliterated any manufacturer's marks that may have been present. It was anticipated that a manufacturing date, based on several features found on the gunlock, could be determined. However, this was not the case, as several of the physical features found on the lock are contradictory in terms of dating the artifact. For example, the lock plate appears similar in shape to those found on the most recent flintlocks, while at the same time, the flash pan does not have a rain gutter to prevent the powder from getting wet, as is found on later flintlocks. The hammer shape also suggests an early form.

A further problem in identifying the artifact was its size. It was too large for a carbine and too small for a musket. A possible

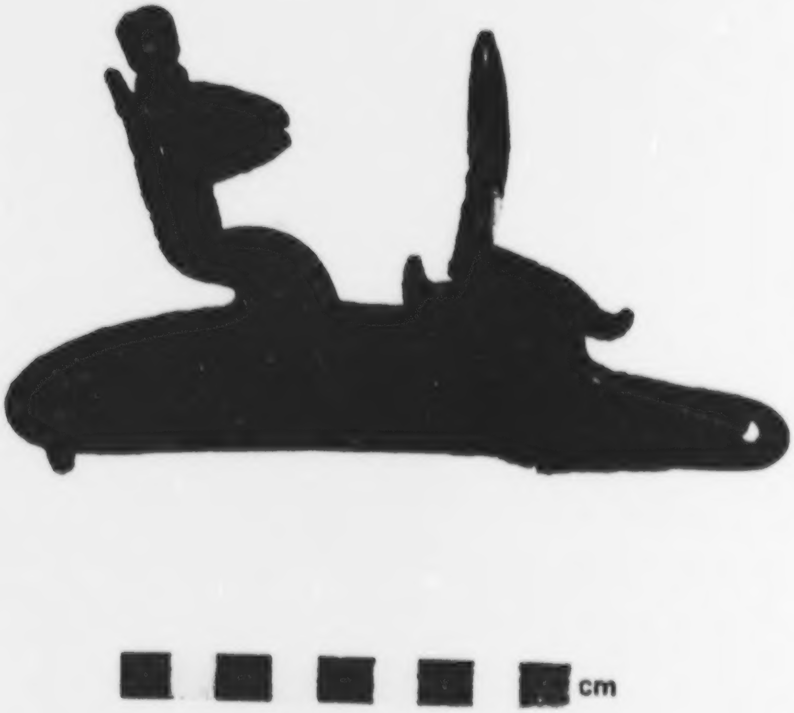

FIGURE 81 Gun lock.

explanation is that this artifact was of local manufacture and may have been altered in shape by repairs. The plate was 15.0 cm long, the spring was 8.2 cm long, and the frizzen was 4.7 cm long and 2.2 cm wide.

Lead Shot

Six of these were recovered, all from excavation. The mean diameter was 0.38 cm with a range of 0.33 cm to 0.40 cm. Based on English measurements, they can be divided into two sizes: four were No. 1 shot (.157 inches) and two were No. 4 shot (.134 inches) (Fig. 80 a and b). One No. 1 shot was recovered from the upper levels of Feature 1, and one No. 4 shot was found in the bottom level of the same feature. A No. 4 shot came from the lower levels of Feature 2, while the three remaining No. 1 shot were obtained from the upper and the lower levels. None were obtained in Feature 3.

A lead net sinker was recovered from Feature 1 at 100 cm deep (Fig. 80e). It is 6.08 cm long, 1.65 cm wide and tapered from 1.22 cm to 0.43 cm thick toward the top.

Discussion

In general, it can be assumed that there were at least three different types of weapons in use at the Garden Site: a flintlock rifle, a percussion cap rifle, and a pistol. None of the hunting equipment could be used to obtain relative dates. The transition from using flintlocks to percussion cap rifles occurred around 1808, and by 1840 most civilians were using the latter type. The British army converted to percussion rifles around 1840. The lock, of course, could not accurately be dated and no similar lock has been observed. The absence of the pan rain gutter suggests an early date, as does the hammer form. However, the hammer style could have continued in use until the 1870s. A probable date for the lock is c. 1840, based on the lock plate morphology.

Summary and Conclusions

Most of the discussion of the Garden Site materials has centered around two topics -- relative dates of occupation and similarities and differences between the three refuse pits.

In the instance of the former, considerable knowledge has already been discovered through historical documentation. There are six artifact categories that yield relative dates: ceramics, buttons, nails, shoes, pipes, and the gun lock. All have a temporal span that encompasses most of the nineteenth century. Therefore, artifact dates and historical documentation are parallel.

The major portion of site interpretation involved the comparison of the three refuse pits. No artifacts with a short temporal span were recovered in any of the levels, thus making temporal comparisons difficult. Only one feature, Feature 1, displayed possible stratigraphic sequences. There appeared to be at least three different periods of deposition, the first two of which were interrupted from the third by flooding at the site. Since occupation of the site began in the mid-1840s, this silt layer could represent the 1852 flood.

Flooding would result in standing water covering the site caused by an overflow of water in the Red and Sale Rivers. A major study on the impact of floods (Turnbaugh 1978) indicates that when flooding occurs, most sites are primarily affected by silt deposition rather than site erosion. This would especially apply to any sites which contained open pits. Unfortunately, no artifacts with a narrow temporal span were recovered either below or above the flood zone. Hence, the assumption that the 1852 flood as represented in Feature 1 is not substantiated by artifactual data. The vertical distribution of artifacts in Feature 1, however, seems to suggest separate periods of deposition. Ceramics, buttons, beads, and charcoal in particular seem to support the assumptions based on the stratigraphy.

Because of the dissimilarity of stratigraphy between all three features, it is impossible to postulate temporal sequences for features 2 and 3 based on the stratigraphy of the first feature. It is possible that Feature 2 was used before a flood, as silty clay is found in the same matrix as artifact-bearing clay with a distinct linear border between the two. This could be the 1852 flood but may also have occurred in 1861. This latter flood seems to appear in the upper levels of Feature 1. Feature 3 was superimposed on Lake Agassiz clay and no flood silt was encountered at any point. It is possible that this third feature functioned later than the other two.

No contrast in function was seen to occur between the three features in terms of the artifacts recovered. Because of the size of Feature 2 and the amount of recovery, it is possible that it was the main centre of refuse disposal for a long period of time. The small amount of artifact recovery in Feature 3 suggests that it was not used as long or as frequently. The type of artifacts recovered, however suggest that all three were utilized in the same manner.

APPENDIX 6-1

Detailed Bead Analyses

TABLE 34

FEATURE #1 BEAD DATA (QUALITATIVE)

GLASS	COLOUR	HUE, VALUE & CHROMA	SEED	INTER	PONY	LEVEL
1.1 Hollow cane drawn: Unmodified						
Opaque	Black/green	No. 5	0	0	1	10
Opaque	Black/green	No. 5	0	0	1	17
					2	
1.2 Hollow cane drawn: Reheated and tumbled						
Transparent	Emerald green	10GY 4/8	1	0	0	5
Opaque	White	N 9.5	1	0	0	6
Opaque	Pink	2.5 YR 8/4	1	0	0	6
Translucent	Aqua Blue	10 BG 8/4	1	0	0	6
Transparent	Red	7.5 R 3/2	1	0	0	6
Opaque	Pink	2.5 YR 8/4	2	1	0	9
Transparent	Turquoise	5 BG 4/8	4	0	0	9
Opaque	Aqua Blue	10 BG 8/4	1	0	0	9
Translucent	Bright Blue	7.5 B 5/8	1	0	0	9
Translucent	Red	7.5 R 3/2	1	0	0	9
Translucent	Bright Blue	7.5 B 5/8	1	0	0	10
Opaque	Pink	2.5 YR 8/4	3	1	0	10
Opaque	Aqua Blue	10 BG 8/4	1	0	0	10
Translucent	Turquoise	5 BG 4/8	1	0	0	10
Transparent	Aqua Blue	10 BG 8/4	1	0	0	11
Opaque	Shadow Blue	2.5 PB 3/10	0	0	1	11
Translucent	Apple Green	7.5 GY 4/8	1	0	0	14
Opaque	Pink	2.5 YR 8/4	1	0	0	16
Opaque	Aqua Blue	10 BG 8/4	1	0	0	16
Translucent	Bright Blue	7.5 B 5/8	1	0	0	16
Translucent	Blue	7.5 B 5/8	1	0	0	18
Translucent	Blue	7.5 B 5/8	2	0	0	19
Opaque	Pink	2.5 YR 8/4	1	0	0	20
Opaque	White	N 9.5	1	0	0	22
Opaque	Pink	2.5 YR 8/4	3	0	0	22
Transparent	Red	7.5 R 3/12	0	1	0	22
Translucent	Shadow Blue	2.5 PB 3/10	1	0	0	22
Opaque	Pink	2.5 YR 8/4	26	0	0	22-24
Translucent	Pink	2.5 YR 7/4	3	0	0	22-24
Transparent	Pink	2.5 YR 7/6	1	0	0	22-24
Transparent	Red	7.5 R 3/12	5	0	0	22-24
Opaque	White	N 9.5	2	0	0	22-24
Opaque	Amber	2.5 Y 7/10	3	0	0	22-24
Opaque	Cinnamon	2.5 Y 7/12	2	0	0	22-24
Opaque	Apple Green	7.5 GY 4/8	1	0	0	22-24
Opaque	Bright Blue	5 GY 5/8	1	0	0	22-24
Translucent	Turquoise	5 BG 4/8	4	0	0	22-24
Transparent	Turquoise	5 BG 4/8	1	0	0	22-24

GLASS	COLOUR	HUE, VALUE & CHROMA	SEED	INTER	PONY	LEVEL
Opaque	Aque Blue	10 BG 8/4	3	0	0	22-24
Translucent	Bright Blue	7.5 B 5/8	11	0	0	22-24
Opaque	Amber	2.5 Y 7/10	3	0	0	20-24
Opaque	Cinnamon	2.5 Y 7/12	1	0	0	20-24
Opaque	Aqua Blue	10 BG 8/4	7	0	0	20-24
Opaque	White	N 9.5	5	0	0	20-24
Opaque	Pink	2.5 YR 8/4	23	0	0	20-24
Translucent	White	N 9.5	1	0	0	20-24
Translucent	Bright Blue	7.5 B 5/8	15	0	0	20-24
Translucent	Turquoise	5 BG 4/8	1	0	0	20-24
Transparent	Red	7.5 R 3/12	6	0	0	20-24
Transparent	Pink	2.5 YR 7/6	7	0	0	20-24
			166	3	1	
1.2.1 Hollow cane drawn: Layered, reheated & tumbled (white opaque core)						
Transparent	Red	7.5 R 3/12	0	2	0	9
Transparent	Red	7.5 R 3/12	1	0	0	20
Transparent	Red	7.5 R 3/12	1	0	0	22-24
Transparent	Red	7.5 R 3/12	3	0	0	20-24
			5	2	0	
2.1 Wire wound: Reheated & tumbled						
Transparent	Bright Blue	7.5 B 5/8	0	0	1	5
Transparent	Bright Blue	7.5 B 5/8	0	0	1	8
Transparent	Bright Blue	7.5 B 5/8	0	0	1	9
Transparent	Bright Blue	7.5 B 5/8	0	0	2	10
Opaque	Black	No. 5	0	0	1	20-24
					6	
3.1 Molded: Undecorated, reheated & tumbled						
Translucent	Red	7.5 R 3/12	0	0	1	4
Translucent	Red	7.5 R 3/12	0	0	1	5
Translucent	Red	7.5 R 3/12	0	0	1	6
Translucent	Red	7.5 R 3/12	0	0	1	11
					4	

TABLE 35

FEATURE 1 BEAD DATA (QUANTITATIVE)

COLOUR	LENGTH	& MEAN (cm)	WIDTH	& MEAN (cm)	BORE DIAMETER	& MEAN (cm)	#
1.1 Hollow cane drawn: Unmodified							
Black/Green No. 5	1.80-1.93	1.86	0.78-0.82	0.80	0.28-0.29	0.28	2
1.2 Hollow cane drawn: Reheated and tumbled							
Emerald Green (10GY4/8)							
(1) transparent	0.12		0.13		0.06		1
White (N 9.5)							
(1) opaque	0.07-0.14	0.10	0.13-0.20	0.16	0.05-0.07	0.06	9
(2) translucent	0.12		0.18		0.06		1
Pink							
(1) opaque (2.5 YR 8/4)	0.07-0.14	0.11	0.14-0.20	0.17	0.05-0.10	0.06	63
(2) opaque	0.10-0.15	0.12	0.21-0.22	0.22	0.07-0.08	0.08	2
(3) translucent (2.5 YR 7/4)	0.10-0.12	0.11	0.19-0.20	0.20	0.07-0.08	0.08	2
(4) transparent (2.5 YR 7/6)	0.09-0.10	0.10	0.17-0.20	0.19	0.05-0.08	0.06	8
Aqua Blue (10 BG 8/4)							
(1) opaque	0.07-0.13	0.09	0.14-0.16	0.15	0.05-0.07	0.06	13
(2) translucent	0.13		0.16		0.05		1
(3) transparent	0.13		0.16		0.05		1
Red (7.5 R 3/12)							
(1) translucent	0.11		0.18		0.05		1
(2) transparent	0.08-0.13	0.10	0.15-0.20	0.18	0.06-0.08	0.07	12
(3) transparent	0.12		0.21		0.08		1
Turquoise (5 BG 4/8)							
(1) translucent	0.08-0.10	0.10	0.16-0.17	0.17	0.05-0.07	0.06	6
(2) transparent	0.09-0.11	0.10	0.15-0.19	0.17	0.06-0.08	0.07	5
Bright Blue (7.5 B 5/8)							
(1) translucent	0.10-0.16	0.12	0.12-0.19	0.18	0.05-0.07	0.06	30
Shadow Blue (2.5 PB 3/10)							
(1) opaque	0.26		0.35		0.10		1
(2) translucent	0.14		0.19		0.07		1

COLOUR	LENGTH	& MEAN	WIDTH	& MEAN	BORE DIAMETER	& MEAN	#
Apple Green (7.5 GY 6/6)							
(1) opaque	0.10		0.19		0.08		1
(2) translucent	0.11		0.18		0.07		1
Amber (2.5 Y 7/10)							
(1) opaque	0.08-0.13	0.13	0.13-0.17	0.15	0.06-0.07	0.06	6
Cinnamon (2.5 Y 7/12)							
(1) opaque	0.10-0.11	0.10	0.14-0.16	0.15	0.06-0.07	0.06	3
Bright Blue (5 GY 5/8)							
(1) opaque	0.09		0.19		0.07		1
1.2.1 Hollow cane drawn: Layered with white core							
Red (7.5 R 3/12)							
(1) transparent	0.10-0.11	0.10	0.15-0.18	0.16	0.05-0.10	0.06	5
(2) transparent	0.14		0.22		0.06		2
2.1 Wire wound: Modified							
Bright Blue (7.5 B 5/8)							
(1) transparent	0.70-0.75	0.73	0.70-0.74	0.71	0.19-0.20	0.20	5
Black (No. 5)							
(1) opaque	0.95		1.12		0.20		1
3.1 Moulded							
Red (7.5 R 3/12)							
(1) translucent	0.97-1.02	0.98	1.23-1.26	1.24	0.17-0.28	0.22	4
				TOTAL OF BEADS IN FEATURE 1			189

TABLE 36

FEATURE 2 (QUALITATIVE)

GLASS	COLOUR	HUE, VALUE & CHROMA	SEED	INTER	PONY	LEVEL
B 1.2 Hollow cane drawn: Reheated & tumbled						
Opaque	Aque Blue	10 BG 8/4	1	0	0	8
Opaque	Shadow Blue	2.5 PB 3/10	0	1	0	8
Opaque	Shadow Blue	2.5 PB 3/10	1	0	0	11
Translucent	Bright Blue	7.5 B 5/8	1	0	0	12
Transparent	Turquoise	5 BG 4/8	2	0	0	13
Translucent	Bright Blue	7.5 B 5/8	2	0	0	13
Opaque	Pink	2.5 YR 8/4	11	0	0	13
Opaque	White	N 9.5	3	0	0	13
Transparent	White	N 9.5	1	0	0	13
Opaque	Shadow Blue	2.5 PB 3/10	10	0	0	13
Translucent	Aqua Blue	10 BG 8/4	2	0	0	13
Opaque	Red	7.5 R 3/12	1	0	0	13
Opaque	Apple Green	7.5 GY 6/6	2	0	0	13
Translucent	Shadow Blue	2.5 PB 3/10	1	0	0	14
Translucent	Aqua Blue	10 BG 8/4	10	0	0	14
Opaque	Aqua Blue	10 BG 8/4	1	0	0	14
Opaque	White	N 9.5	3	1	0	14
Opaque	Amber	2.5 Y 7/10	1	1	0	14
Opaque	Pink	2.5 YR 8/4	11	2	0	14
Translucent	Pink	2.5 YR 7/4	2	0	0	14
Translucent	Red	7.5 R 3/12	1	0	0	14
Opaque	Apple Green	7.5 GY 4/8	6	0	0	14
Transparent	Red	7.5 R 3/12	1	0	0	14
Transparent	Turquoise	5 BG 4/8	1	0	0	14
Translucent	Bright Blue	7.5 B 5/8	2	0	0	14
Opaque	Aqua Blue	10 BG 8/4	4	0	1	15
Opaque	Pink	2.5 YR 8/4	11	0	0	15
Opaque	Apple Green	7.5 GY 4/8	2	0	0	15
Transparent	Bright Blue	7.5 B 5/8	1	0	0	15
Translucent	Bright Blue	7.5 B 5/8	11	0	0	15
Transparent	Turquoise	5 BG 4/8	4	0	0	15
Opaque	Shadow Blue	2.5 PB 3/10	6	0	0	15
Opaque	Cinnamon	2.5 Y 7/12	2	0	0	15
Translucent	Red	7.5 R 3/12	6	0	0	15
Opaque	White	N 9.5	158	0	0	15
Transparent	Clear		1	0	0	15
Opaque	Pink	2.5 YR 8/4	5	0	0	16
Opaque	Apple Green	7.5 GY 4/8	2	0	0	15
Opaque	Aqua Blue	10 BG 8/4	1	0	0	16
Opaque	Amber	2.5 Y 7/10	1	0	0	16
Opaque	White	N 9.5	2	0	1	16
Translucent	Turquoise	5 BG 4/8	1	0	0	16
Translucent	Bright Blue	7.5 B 5/8	6	0	0	16
Translucent	Red	7.5 R 3/12	3	0	0	16
Translucent	Apple Green	7.5 GY 4/8	2	0	0	16
			305	5	2	

GLASS	COLOUR	HUE, VALUE & CHROMA	SEED	INTER	PONY	LEVEL
1.2.1 Hollow cane drawn: Layered red and white						
Transparent	Red	7.5 R 3/12	1	0	0	9
Transparent	Red	7.5 R 3/12	1	0	0	10
Transparent	Red	7.5 R 3/12	1	0	0	11
Transparent	Red	7.5 R 3/12	1	0	0	12
Transparent	Red	7.5 R 3/12	8	0	0	13
Transparent	Red	7.5 R 3/12	9	0	1	14
Transparent	Red	7.5 R 3/12	4	0	0	15
Transparent	Red	7.5 R 3/12	5	0	0	16
			30	0	1	
1.2.2 Hollow cane drawn: Layered with brown opaque core						
Opaque	Red	7.5 R 3/12	0	1	0	14
1.2.3 Hollow cane drawn: Layered with black opaque core						
Opaque	Red	7.5 R 3/12	0	1	0	16
2 1 Wire wound: Reheated and tumbled						
Transparent	White	N 9.5	0	0	1	12

TABLE 37

FEATURE 2 BEAD DATA (QUANTITATIVE)

COLOUR	LENGTH &	MEAN	WIDTH &	MEAN	BORE DIAMETER &	MEAN	#
1.2 Hollow cane drawn: Reheated and tumbled							
Aqua Blue							
(10 BG 8/4)							
(1) opaque	0.07-0.11	0.09	0.12-0.20	0.15	0.06-0.10	0.07	7
(2) opaque	0.24		0.30		0.13		1
(3) translucent	0.08-0.11	0.09	0.11-0.16	0.15	0.06-0.10	0.07	9
Shadow Blue							
(2.5 PB 3/10)							
(1) opaque	0.07-0.14	0.10	0.13-0.16	0.14	0.04-0.10	0.08	17
(2) opaque	2.4		2.6		1.0		1
(3) translucent	1.0		1.6		1.0		1
Bright Blue							
(7.5 B 5/8)							
(1) translucent	0.07-0.13	0.09	0.11-0.18	0.15	0.05-0.07	0.06	22
(2) transparent	0.09		0.16		0.05		1
Turquoise							
(5 BG 4/8)							
(1) translucent	0.07		0.14		0.05		1
(2) transparent	0.08-0.15	0.11	0.09-0.17	0.14	0.05-0.08	0.07	7
Pink							
(2.5 YR 8/4)							
(1) opaque	0.07-0.13	0.10	0.14-0.19	0.16	0.04-0.10	0.07	38
(2) opaque	0.10-0.15	0.12	0.21-0.23	0.22	0.07-0.09	0.08	2
(3) translucent	0.09		0.11		0.06		2
White							
(N 9.5)							
(1) opaque	0.06-0.13	0.08	0.11-0.19	0.13	0.04-0.10	0.05	169
(2) opaque	0.12		0.25		0.10		1
(3) opaque	0.21		0.33		0.12		1
(4) transparent	0.10		0.13		0.10		1
Red							
(7.5 R 3/12)							
(1) opaque	0.10		0.16		0.10		1
(2) translucent	0.05-0.11	0.09	0.12-0.18	0.15	0.05-0.06	0.06	10
(3) transparent	0.10		0.17		0.06		1
Apple Green							
(7.5 GY 6/6)							
(1) opaque	0.09-0.15	0.12	0.14-0.20	0.17	0.05-0.10	0.07	12
(2) translucent	0.11-0.13	0.12	0.15-0.18	0.16	0.06-0.07	0.06	2

COLOUR	LENGTH &	MEAN	WIDTH &	MEAN	BORE DIAMETER &	MEAN	#
Amber							
(2.5 Y 7/10)							
(1) opaque	0.12		1.8		0.07		2
(2) opaque	0.11		0.20		0.09		1
Cinnamon							
(2.5 Y 7/12)							
(1) opaque	0.12		0.18		0.06		2
1.2.1 Hollow cane drawn: Layered red and white							
Red							
(7.5 R 3/12)							
(1) transparent	0.08-0.13	0.10	0.14-0.20	0.17	0.05-0.10	0.07	30
(2) transparent	0.23		0.32		0.13		1
1.2.2 Hollow cane drawn: Layered with brown opaque core							
Red							
(7.5 R 3/12)							
(1) opaque	0.20		0.26		0.09		1
1.2.3 Hollow cane drawn: layered with black opaque core							
Red							
(7.5 R 3/12)							
(1) opaque	0.24		0.27		0.10		1
2.1 Wire wound: Tumbled and reheated							
White							
(N 9.5)							
(1) transparent	0.91		0.51		0.14		1
			TOTAL				346

TABLE 38

FEATURE 3 BEAD DATA (QUALITATIVE)

GLASS	COLOUR	HUE, VALUE & CHROMA	SEED	INTER	PONY	LEVEL
1.1 Hollow cane drawn: unmodified						
Translucent	Bright Blue	7.5 B 5/8	0	0	1	11
1.2 Hollow cane drawn: reheated and tumbled						
Opaque	Amber	2.5 Y 7/10	1	0	0	3
Translucent	Bright Blue	7.5 B 5/8	2	0	0	6
Translucent	Aqua Blue	10 BG 8/4	1	0	0	6
Translucent	Bright Blue	7.5 B 5/8	1	0	0	7
Opaque	White	N 9.5	1	0	0	7
Opaque	Apple Green	7.5 GY 6/6	0	1	0	8
Translucent	Aqua Blue	10 BG 8/4	1	0	0	11
			7	1	0	

TABLE 39

FEATURE 3 BEAD DATA (QUANTITATIVE)

COLOUR	LENGTH	& MEAN	WIDTH	& MEAN	BORE DIAMETER	& MEAN	#
1.1 Hollow cane drawn: Unmodified							
Bright Blue (7.5 B 5/8) (1) translucent	0.50		0.54		0.21		1
1.2 Hollow cane: Reheated and tumbled							
Amber (2.5 Y 7/10) (1) opaque	0.12		0.18		0.07		1
Bright Blue (7.5 B 5/8) (1) translucent	0.09-0.14	0.11	0.17-0.18	0.17	0.05-0.06	0.06	3
Aqua Blue (10 BG 8/4) (1) translucent	0.11-0.14	0.12	0.16-0.17	0.16	0.06-0.07	0.06	2
White (N 9.5) (1) opaque	0.10		0.16		0.06		1
Apple Green (7.5 GY 5/5) (1) opaque	0.13		0.21		0.09		1
					TOTAL		9

TABLE 40

NO FEATURE ASSOCIATION BEAD DATA (QUALITATIVE)

GLASS	COLOUR	HUE, VALUE & CHROMA	SEED	INTER	PONY	UNIT	LEVEL
1.2 Hollow cane drawn: Reheated and tumbled							
Opaque	Shadow Blue	2.5 PB 3/10	0	0	1	186/190	3
Opaque	Pink	2.5 YR 8/4	1	0	0	182-184/ 186	4
			$\overline{1}$	$\overline{0}$	$\overline{1}$		
Unanalysable	24						

TABLE 41

NO FEATURE ASSOCIATION BEAD DATA (QUANTITATIVE)

COLOUR	LENGTH	WIDTH	BORE DIAMETER	#
1.2 Hollow cane drawn: Tumbled and reheated				
Shadow Blue (2.5 PB 3/10) (1) opaque	0.18	0.30	0.15	1
Pink (2.5 YR 8/4) (1) opaque	0.10	0.18	0.07	1

APPENDIX 6-2

Coprolitic Analysis

Several coprolites were recovered from the excavations, all from the lower levels of Feature 2 (Figure 82). Only three of these pieces were fully analyzed. The method of analysis was identical to the procedure outlined by Vaughn Bryant (1974). The objectives of the coprolite analysis were (1) to discern whether or not they represented human fecal remains and if so, (2) to ascertain particulars of diet and season of deposition.

The three coprolites chosen ranged in length from 2.70 cm to 3.80 cm and in width from 1.0 cm to 1.4 cm. Weight ranged from 1.3 to 3.5 grams. All were oblong and were a grey-brown in colour. The largest of the three contained pieces of fish bone and scales.

All three were soaked in a 0.5% solution of trisodium phosphate, one for a period of three days, the other two for two weeks. If the coprolites were human, soaking them in Na_3PO_4 solution would turn the solution a dark brown or black colour and also transmit a distinct odor, similar to that of fresh feces (Bryant 1974:5). None of the three displayed these phenomena; in contrast, they turned the solution a light brown colour and expelled a slight musky odor. The fecal remains are probably from a small carnivore such as a racoon or skunk. Once it was discovered that these were not of human origin, the analysis was abridged. After the two pellets had soaked for two weeks, they were screened through a 5 mesh, 9 mesh, 16 mesh, 32 mesh and 60 mesh screen. The pieces of trapped residue were collected and

FIGURE 82 Coprolites.

dried. The material that passed through the screens was collected for pollen analysis. However, due to a lack of time and the determination that they were not of human origin, this latter step was abandoned.

Contained within the dried residue were several fish ribs and scales, and several unidentifiable and identifiable mammal bones. Those identified included mandibles, femurs, humeri and other assorted long bones of small rodents. These were all contained within the largest pellet. The others contained additional identifiable small mammal bones plus a bird vertebra.

No additional information was obtained from the fecal pellets. They could have been deposited by any one of a number of carnivores. Raccoon and skunk have been mentioned but the possibility of a weasel or even a house cat exists. They could have been deposited by wild animals as they foraged in the refuse, or if they are from a house cat, the feces could have been deposited in the dump as a function of house cleaning. It would also account for the presence of cat bones in the same feature.

APPENDIX 6-3

Surface Artifacts

Household Goods

Metal

Six articles among the identifiable metal surface recoveries were household goods. These consisted of a broken key, a rim from a tin vessel, a tin label and three pieces of lead foil. Recently deposited surface material included a 1977 Canadian penny, a barrel from a toy gun, and a broken stainless steel knife blade.

Glass

Bottle glass fragments were fairly numerous and were typed in the same manner as the bottle glass discussed in the text, i.e., according to colour, thickness and patination. There were 19 types of bottle glass found at the site. Fifteen of these were found on the surface and are presented in Table 42.

Ceramics

Twenty-one ceramic fragments were found on the surface. These fragments were typed in the same manner as those discussed in the text and are presented in Table 43.

Building and Construction

Metal

Fifty-one items were collected from the surface. These included a broken auger bit, a piece of copper, a lead lock washer, five pieces of wire, two fencing staples, ten paper staples, two pieces of barbed wire and three pieces of barrel hooping. Twenty-eight nails were also recovered.

Glass

Window glass found on the surface was typed in the same manner as that discussed in the text. Of the seven types recovered from the site, six of these were found on the surface and are presented in Table 44.

Clothing and Ornament

Eleven items were found on the surface. One was the rim of a silver pocket watch that would have measured approximately 3.0 cm or 4.0 cm in diameter. The other ten items were buttons (please refer to discussion in text).

Miscellaneous Metals

This category includes all the unidentifiable metal fragments whose form and function could not be determined. Thirteen cut metal fragments were recovered. One copper and two lead fragments were also found. A metal projectile point measuring 0.13 cm thick, 4.59 cm along two edges and 4.14 cm along the other was also collected. A total of 131 unidentifiable metal fragments was collected from the surface.

Results

A chi-squared test was performed to determine the randomness of the surface distribution. The categories used in this analysis were Household goods, Building and construction, and Miscellaneous metals. Clothing and ornament was not used because there were too few items in this classification, and Subsistence artifacts were not represented in the surface collection. Only those artifacts that had been accurately mapped during collection were used and the area was restricted to those quadrants within 160 to 200 N and 160 to 200 W.

The results of this test showed that there was a significant difference between a random distribution and the distribution obtained from the surface collection for the three groups. For Building and construction $x = 45.9$, $p < .05$, $df = 6$, for Household goods $x = 30.28$, $p < .05$, $df = 6$, and for Miscellaneous metals $x = 16.55$, $p < .05$, $df = 6$. Therefore, all three groups showed a non-random distribution (see graphs)

TABLE 42

SUMMARY OF SURFACE BOTTLE GLASS

TYPE	CHARACTERISTICS	NUMBER
1	blue - 1.5-.32 cm, little patina	1
2	brown - 3.5 cm, no patina	2
3	green - .80 cm, heavily patinated	2
4	green - .33 cm, some patina	1
5	clear - .50 cm, no patina	5
6	greenish - no patina	1
7	greenish - .36 to 49 cm, no patina	2
8	greenish - .27 cm, no patina	1
9	pinkish - .41 cm, little patina	3
10	clear - .19 cm, no patina	6
11	clear, .06 to .32 cm, quite patinated	3
12	molten fragments	12
13	lettered or patterned	1
19	vegetable pain killer - 17 in some patina	1
	TOTAL	41

TABLE 43

SUMMARY OF SURFACE CERAMIC TYPES

SUBTYPE	NAME	NUMBER
3.1	Blue Ceres	2
3.3.1	Sponged	8
3.4	Flower vase	2
3.14	Ruins	2
3.15	Hand painted: black and yellow	2
3.29	*Rhus radicans*	5
	TOTAL	21

TABLE 44

SUMMARY OF SURFACE WINDOW GLASS

TYPE	CHARACTERISTICS	NUMBER
1	greenish - .23 - some patina	2
2	greenish - .21 - some patina	14
3	greenish - .18 - quite patinated	4
4	clear - .17 - some patination	2
5	clear - .20 - little or none	9
6	clear - .15 - no patina	2
	TOTAL	33

APPENDIX 6-4

ANALYSIS OF FIBROUS MATERIALS FOUND AT AN ARCHAEOLOGICAL SITE LOCATED AT ST. NORBERT, MANITOBA

1979

Introduction

While very little information is contained in the literature concerning actual procedures for fibre identification of textile artifacts, it is known that microscopy is a valuable tool for this purpose. Microscopic techniques: i) use small amounts of specimen, ii) are non-destructive and, iii) can be used to assess damage to localized areas and hence, facilitate restoration procedures. Furthermore, they allow observation of individual components which is necessary in fibre identification and damage assessment. In some instances, microscopic examinations allow an assessment of fibre quality. It is undesirable to use alternate procedures such as standard chemical tests as they tend to be unreliable with archaeological textiles due to the degraded nature of the fibres (Burnham: personal communication).

Purpose

This report describes the use of microscopy for fabric structure and fibre content analysis of twenty samples of fibrous material found at an archaeological site located at St. Norbert, Manitoba. It has been speculated that the site was a Metis homestead sometime during the mid-nineteenth century. Identification of textile remnants found at the site could support this theory.

Twenty-one labelled samples were received for examination. Twenty of these contained fibrous material. Two of these samples, DkLg-16/194N/196W and DkLg-16/3938 were subdivided into visually different specimens. No restorative techniques were undertaken. The samples were kept in their natural state so that further analyses of soil could be made at a later date if desired.

Methodology

Preliminary examination of samples received showed that they were very dry and brittle. This necessitated conditioning in a controlled atmosphere (65% R.H. and 20° C) prior to testing to increase the moisture content and therefore reduce brittleness. After conditioning, specimens were examined for fabric form (woven, knitted, or other) with the aid of a stereoscopic microscope (10X - 20X magnification). A small quantity of fibres was removed from each sample and immersed in distilled water and carefully agitated for a short period of time. No other cleaning agents were used. Chemicals were avoided as fibres were badly degraded. These fibres were mounted in distilled water and examined with the light microscope (100X - 400X magnification). Chemical mounting media were not used for fear they would cause disintegration of the already badly degraded fibres. If results proved inconclusive, the fibres were further examined for characteristic structure and polarization phenomena using the polarizing microscope (Magnification 100X - 400X). A photographic record of microscopic observations was kept. In some instances, staining was utilized to accentuate fibre structure, e.g. methylene blue for wool.

Results

Tables 45 and 46 show results of stereoscopic observations of fabric form.

TABLE 45

STEREOSCOPIC EXAMINATION OF FABRIC STRUCTURE

SPECIMEN	WOVEN/KNIT	WEAVE	COUNT	MAGNIFICATION
DkLg-16/3845	Woven	Plain	1/1	40X
DkLg-16/4030	Structure visible to the naked eye but indeterminable as yarns appear to be present in one direction only.			
DkLg-16/3166	Woven	Plain	1/1	20X
DkLg-16/2384	Woven	Plain	1/1	20X
DkLg-16/2416	Woven	Plain	1/1	20X
DkLg-16/2418	Woven	Plain	1/1	20X
DkLg-16/3885	Woven	---[1]	---	40X
DkLg-16/3838	---	---	---	40X
DkLg-16/2416*	Woven	---	---	40X
DkLg-16/3831	---	---	---	40X
DkLg-16/3811	---	---	---	40X
DkLg-16/194N/196W 165-120CM (A)	Woven	Plain	1/1	20X
DkLg-16/194N/196W 165-120CM (B)	---[2]	---	---	40X
DkLg-16/194N/196W 165-120CM (C)	---	---	---	40X
DkLg-16/194N/196W 165-120CM (D)	Woven	Plain	1/1	20X
DkLg-16/194N/196W 165-120CM (E)	---	---	---	40X
DkLg-16/2386	Woven	Plain	1/1	20X
DkLg-16/2416 Unit N18 W18/7 Level XV	Some fibrous material was present on the largest lump of soil but the form was indistinguishable.			
DkLg-16/3938 (A)	---[2]	---	---	40X
DkLg-16/3938 (B)	Woven	Plain	1/1	20X
DkLg-16/3938 (C)	Woven	---	---	40X
DkLg-16/3938 (D)	Woven	---	---	40X
DkLg-16/2364	Woven	Plain	1/1	20X
DkLg-16/4029	Yarns side by side with no interlacements.			
DkLg-16/4019	Yarns side by side with no interlacements.			
DkLg-16/2385	Woven	Plain	1/1	20X
DkLg-16/4076	---	---	---	40X

[1] --- means indistinguishable

[2] --- material present in fibrous form rather than as fabric

NOTE: Sample DkLg-16/3809 was a button and therefore, not analyzed

TABLE 46

FIBRE STUDY USING THE LIGHT AND POLARIZING MICROSCOPES

SPECIMEN	CHARACTERISTIC STRUCTURE	MAGNIFICATION	NATURAL VS. MAN-MADE	POSSIBLE IDENTITY
DkLg-16/3845	Scales	400X	Natural	Wool - Blue and natural colour fibres are present
DkLg-16/4030	Convolutions	400X	Natural	Cotton
DkLg-16/3831	Scales	100X	Natural	Wool
DkLg-16/3166	---	400X	---	---
DkLg-16/2416	---	400X	---	---
DkLg-16/2384	---	400X	---	---
DkLg-16/2416*	---	400X	---	---
DkLg-16/194N/196W 165-120 CM (A)	---	400X	Gold and green coloured fibrous material has polarization colours similar to those of wool.	
DkLg-16/194N/196W 165-120 CM (B)	---	400X	Polarization colours similar to those for wool and silk.	
DkLg-16/194N/196W 165-120 CM (C)	Fragmented Medulla Scales	400X	Natural: Wool or Hair. (Fibres stained with methylene blue to accentuate scale structure.)	
DkLg-16/194N/196W 165-120 CM (D)	Scales	400X	Natural	Wool
DkLg-16/194N/196W 165-120 CM (E)	Scales	400X	Wool. Polarization colours of fibres are similar to those of wool.	
DkLg-16/3938 (A)	Scales	400X	Natural	Fibres are badly degraded, but polarization colours are similar to those of wool.
DkLg-16/3938 (B)	---	400X	Indistinguishable. A rust-like deposit coating the fibres makes identification difficult.	

SPECIMEN	CHARACTERISTIC STRUCTURE	MAGNIFICATION	NATURAL VS. MAN-MADE	POSSIBLE IDENTITY
DkLg-16/3938 (C)	Scales	400X	Natural	Wool. Polarization colours of fibres are similar to those of wool.
DkLg-16/3938 (D)	---	400X	Wool or hair. Polarization colours are similar to those noted for known wool or hair fibres.	
DkLg-16/3838	Crosswise markings and medulla appear to be present.	400X	Natural	Wool or hair.
DkLg-16/3811	Scales	400X	Natural	Wool
DkLg-16/4109	---	400X	Indistinguishable. A rust-like deposit coating the fibres makes identification difficult. Where parts of the fibres are exposed, the polarization colours with a 530 mu compensator are green and gold.	
DkLg-16/3885	Scales	400X	Natural. Polarization colours of fibres are similar to those of wool.	
DkLg-16/4078	---	400X	Are what appears like scales on several fibres. Polarization colours noted were similar to those of wool.	
DkLg-2385	Scales	400X	Natural	Wools
DkLg-4029	Fragmented medulla, scales	400X	Natural	Wool or hair
DkLg-2364	---	400X	Indistinguishable but polarization colours resemble those of wool	
DkLg-2386	Scales	400X	Natural	Wool
DkLg-16/241 b	Scales	400X	Natural wool. Polarization colours resemble those of wool.	

All fibre specimens which were assigned a "possible identity" were wool or hair, excluding one which was cotton. While microscopic procedures for the determination of the quality of wool and cotton fibres are known, none were attempted as no method is known for the determination of age of these fibres based on fibre quality.

Conclusions

Possible identities were assigned to 18 of the 26 specimens examined. The remaining eight were unidentifiable due to severe degradation.

It is suggested that the identity of specimens might be confirmed through cross-sectioning or scanning electron microscopy techniques.

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CHAPTER VII

DESCRIPTION OF THE FAUNAL REMAINS

Acknowledgments

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Introduction

Archaeological bones and scales representing fish, and bones representing birds and mammals, were recovered from the surface of the site and from excavations in and around the three sub-surface features. Identification was conducted without reference to provenience. Afterwards, identified remains were examined as four groups according to location. The four headings used include "Non-feature", "Feature 1", "Feature 2" and "Feature 3". The first of these subsumes all surface recoveries and those that were excavated from areas not associated with any feature. Bones associated with the features include excavated finds and those found on the surface above or adjacent to the units in which the respective feature was located. While it is known from the stratigraphic analysis that approximately 15-20 cm of overburden has been disturbed, surface or near-surface concentrations apparently still reflect the extent of the sub-surface features. In calculations of minimum numbers of individuals (MIND), very few of the individual elements used in this calculation were not found in definite association with one of the features.

Four classes were distinguished for this analysis: (a) fish, (b) bird, (c) mammal, and (d) unidentifiable butchered mammal bone. Fish remains included both scales and bones in sufficient quantities for separate analyses. Mammal bones included those representing small, often indigenous mammals and those belonging to larger indigenous and domestic animals.

Methods

Individual elements from all species were identified with reference to the bones of known specimens housed either at the University of Manitoba, The Royal Ontario Museum or The Manitoba Museum of Man and Nature. If, as in some cases, an element could not be identified using comparative specimens, identification was attempted using standard faunal osteology references (Gilbert 1969; Olsen 1969; Howard 1929; Van Oosten 1957).

Fish

Scales

Scales were selected for analysis if they were from known proveniences and if they were well preserved. If more than one scale was present for a single provenience, two specimens were selected in case one of them could not be identified or in case the scales from more than one fish type had been mixed in situ. If both scales from a single provenience were identified to the same fish type, then the second specimen was deleted from the total sample used in the calculation of frequencies. These cases were labelled "duplicates".

Scales were mounted in glycerin between microscope slides and examined under a stereoscope. Comparisons were made using scales from known species representing those fish types that were expected to be present due to the close proximity of the Sale River to the site.

Bones

While a large number of fish bones was recovered, many, notably ribs, rays and vertebrae, were not useful for identification and these were not considered in the analysis. Rather, bones from the cranial and gill arch complexes were used because these can be much more diagnostic as indicators of genera or species. These were compared to known fish specimens native to Manitoba. While this procedure reduced the size of the sample, use of the more diagnostic bones insured greater accuracy in identification.

Birds

Of the three faunal classes, birds were least represented. Because identification was done outside the province, bird remains were sampled by selecting the four most numerous and intact groups of elements. These included the humerus, coracoid, carpometacarpus and ulna. One nearly complete cranium was also included for examination. It was assumed that this sampling procedure would permit an accurate assessment of the types of birds that were present at the site and, further, would permit a calculation of the minimum number of individuals (MIND).

Mammals

The greatest proportion of complete and fragmented bones at the Garden Site were from mammals. Those showing morphological features diagnostic of genus or species were examined in two groups determined on the basis of the size of the animal concerned.

Small mammals

This group includes small indigenous mammals common to the St. Norbert area. These include rabbits, muskrat, ferrets, and beaver as well as those that may have been hunted or trapped for food and/or fur. Other small animals such as squirrels are included in this group in order to examine their contribution to the occupation's economic base.

Medium and large mammals

The number of elements representing medium and large mammals was relatively smaller than the number of small mammal remains. The narrow distribution of these larger mammal elements and the relative proportions of small and large animals, however, suggests that separate analyses may show evidence of the subsistence strategies of the Garden

Site. Further, preliminary analysis suggests that some of the elements may represent domestic animals.

Butchered Bone

While each of the fish, bird and mammal classes mentioned above are expected to evidence butchering to some degree, a separate class is required for the examination of the unidentifiable butchered bone from larger mammals. Frequently, the bones from large animals were cut or broken into pieces of convenient size for the purpose of extracting bone-grease and/or bone-glue (Bonnichsen 1973). Among the principal bone elements used in these processes are the ribs and these occur as cut or broken sections. Their fragmentary state prevents accurate identification but the fragments themselves are amenable to examination for butchering techniques.

Twenty-five of thirty-four butchered rib fragments from large animals were examined for evidence of consistencies in butchering techniques. Preliminary examination indicates that ribs were deliberately broken into three parts or sections. These sections are examined separately to determine the types of breakage resulting from butchering. Categories used appear below.

Individual sections were defined using the morphological characters that each retained after butchering. In part, the location of the break defined the section being examined.

Section 1. The first section is the proximal end of the rib bearing at least a portion of the articular facets for the vertebrae.

The location of the break between this section and the more distal part of the rib is referred to as "Location B" (Fig. 83).

Section 2. This is the medial fragment of the rib lacking any articulations. This section is determined by break locations at A and B.

Section 3. The distal end of the butchered rib comprises this section. The cut location is at A.

Additional locations are found on Section 1 and are defined below. These breaks do not influence the identification of the rib section.

Location D. A break removing all articular facets from Section 1 while not removing the non-articulating part of the tubercle from the proximal end of the section.

Location D'. A variation of the break at Location D removing only a portion of the articulating facets.

Location D". A second variation of the break at Location D removing the anterior and posterior facets with two separate breaks. Breaks are usually observed in two different planes.

The different types of breaks are identified by the reaction of the bone to the kind of tool used to effect the break. This stage of the classification is done without reference to the location of the break examined, although undoubtedly the break location selected during butchering and the type of tool selected are inter-dependent.

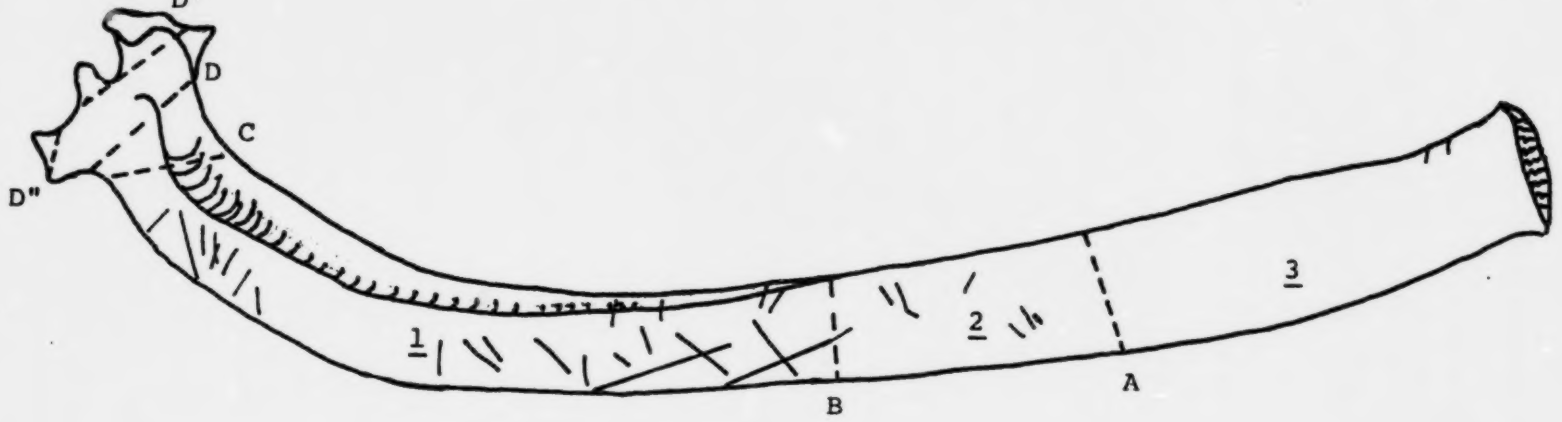


FIGURE 83 Large mammal rib showing sections, types of breaks and locations of Type II and Type III cuts.

Tools available for butchering included knives, axes and saws. Marks made by one of these tools are relatively simple to differentiate. Types of breaks are also defined by the number of actions required to accomplish a bone break (e.g., Type X', below) or by the apparent number of unsuccessful attempts to make the break (e.g., Type Y). Types of breaks are listed below.

Type U. A dry break, apparently not associated with butchering. Included here were breaks that could not be classified due to *in situ* destruction of bone or those attributed to trowel trauma.

Type V. Break resulting from some technique or tool not associated with one of the above tools. Possibly, some were smashed using rocks but this is uncertain.

Type W. Chopped with an axe and showing an impacted bone chip in the marrow cavity adjacent to the point of impact.

Type X. Chopped with an axe, but no evidence of an impacted bone chip.

Type X'. Chopped with an axe from two directions. This type is characterized by axe marks originating from different directions, leaving two distinct cut marks at converging angles.

Type Y. Frequently similar to Type X', the attempt being unsuccessful and resulting in the bone having to be snapped to complete the break.

Type Z. Distinguishable saw cut marks characterize this type of break. These were not observed on the ribs during preliminary examination. It is unlikely that saw cuts will be observed as this tool would likely be favoured for elements with more compact bone.

Type I or Type II. The first type is identified as a simple mark resulting from a cut using the knife at an angle of ca. 90^o to the bone. Type II is a mark made by holding the knife at an acute angle such as might result from stripping the flesh or hide from the rib.

Type K. A cut on the bone caused by a knife blade or possibly by the reduced force of an axe. This type was rarely seen as the cause of breakage in the large mammal ribs.

Samples

Fish

Scales

Seventy-four scales representing 65 loci were examined. Thirteen of these were eliminated from the final sample either because they could not be positively identified or because they were categorized as "duplicates". The final total for the site is 61 scales from 54 separate locations. Only four scales identified originate from the surface. The remaining 57 scales were associated with and excavated from one of the features.

Bones

A total of 38 fish bones were compared with elements from known fish types. These diagnostic bones are listed in Table 47. This list represents only bones from the sample of 38, not the number of bones available from the skeleton. Included in the table are the codes used to denote the element examined. This coding system is used in the appendix to list the individual specimens that were identified.

Bird

Sampling the total bird bone recovery resulted in 28 complete or almost complete elements for analysis. There was also a single bird skull available. Of the four elements chosen to represent the avifaunal component, there were eight humeri, 14 carpometacarpi, four coracoids, and two ulnae. Table 48 lists the codes used for each element in the appendix. Only two elements originated from locations outside of the features, while the majority are associated with levels well below the disturbed soil zone.

Small Mammal

Small mammal bones were identified from all locations within the site. A total of 109 diagnostic bones comprised this component of the recovered materials. Virtually all elements of the skeleton were present with the exception of cranial bones. These bones were identified as noted in the Appendix. No attempt was made to identify phalanges. It should also be noted that approximately two per cent of the small mammal remains could not be identified even though individual bones were intact.

TABLE 47

GUIDE FOR NUMBERING ELEMENTS OF THE FISH SKELETON

1	frontal bone
11	maxillary
13	dentary
14	articular
18	metapteragoid
21	preoperculum
24	operculum
27	pterotic
29	supraoccipital
33	cleithrum
34	scapula
52	pharyngeal arch
53	ural vertebra

TABLE 48

GUIDE FOR NUMBERING ELEMENTS OF THE BIRD SKELETON

1	humerus
2	carpometacarpus
3	coracoid
4	ulna

This suggests that one or two small mammals, other than those identified, may have been present in the Garden Site economy.

Unidentified Butchered Bone

Twenty-five sections of mammal rib were examined for breaks and types of breaks in order to determine butchering techniques. Of these 25, ten were first sections, eight were second sections and seven were third or distal sections.

Results

Fish

Scales

Examination of the scales resulted in the identification of five different fish types. These were present in the following proportions: Hiodon or goldeye (41%); C. clupeaformis or whitefish (22%); Catostomidae or sucker (15%); Stizostedior or sauger (4%); and A. grunniens or sheepshead (1%). Duplicates and unidentified scales represented 18% of the 74 scales examined. A total of 61 scales could be identified to the genus or species level.

Of the 61 scales, 57 came from the features, while four were surface finds. Table 49 shows the distribution of identified scales in the site. Nearly half (49%) belonged to the Goldeye/Mooneye genus, and a quarter (26%) were from lake whitefish. Approximately one fifth (18%) of identified scales were from suckers, while Stizostedion and A. grunniens show small frequencies. More than half the scales identified come from Feature 2.

TABLE 49

COMPARISON OF FISH BONES AND SCALES

SPECIES	NON-FEATURE		FEATURE 1		FEATURE 2		FEATURE 3		SITE TOTALS	
	b	s	b	s	b	s	b	s	b	s
Hiodon sp.		3	2	6	16	12		9	18 60%	30 49%
Coregonus clupeaformis				2	6	11	1	3	7 23%	16 26%
Catostomidae				1	2	6		4	2 7%	11 18%
Stizostedion sp.				1	2	2			2 7%	3 5%
A. grunniens	1	1							1 3%	1 2%
FEATURE TOTALS	1	4	2	10	26	31	1	16	30	61

b = bone

s = scale

Freshwater drum scales were completely absent from the features. The remaining four fish types found in the features show frequencies indicating the relatively heavy use of *Hiodon* and lesser use of whitefish, suckers and walleye/sauger (Table 50). Scales from this last species were not recovered from Feature 3.

TABLE 50

DISTRIBUTION OF FISH SCALES IN FEATURES

	FEATURE 1	FEATURE 2	FEATURE 3	TOTALS	
SPECIES				n	%
Hiodon sp.	60%	39%	59%	27	48
Coregonus clupeaformis	20%	35%	19%	16%	29
Catostomidae	10%	19%	25%	11	20
Stizostedion sp.	10%	6%		3	5
Number in Feature	10	31	16	57	
Per Cent in Feature	18	54	28		

Comparisons of scale and bone frequencies indicate that both kinds of fish remains were distributed in fairly similar proportions (Table 49). Because of this general agreement, scales were used to assess the possibility that features show differential use with respect to the distribution of scales and fishes in general. Chi-square (X^2) tests show little likelihood of this, as probabilities are very small: *Hiodon* - $X^2 = 1.77$, whitefish - $X^2 = 1.46$, sucker - $X^2 = 1.62$, and walleye-mooneye - $X^2 = 1.00$ *all with d.f. = 3).

Bones

Fish bones were also present in areas where scales were recovered (Table 49). In addition to the five fish types already mentioned, bones were identified to show the presence of Ictaluridae (catfish) and *L. lota* (burbot). The catfishes were found in Feature 2 while the burbot was a surface find. That their scales were not identified was not surprising, as the burbot scales are microscopic and the catfishes have none to begin with.

Calculation of the minimum number of individuals (MIND) used bone elements noted in the appendix (Table 62). The minimum number of fishes (Table 51) shows that 16 individuals were present in the following proportions: *Hiodon* - 44%, *C. clupeaformis* - 19%, Ictaluridae - 12%, and *Lota lota*, Catostomidae and *Stizostedion*, each at 6%.

Bird

Fifteen bird genera and species were identified from the sample of 29 bones (Table 52). All but three of the fifteen are migratory. These birds include a hawk (*Buteo* sp.)(Figure 84), eight ducks, a white-fronted goose (*A. albifrons*) and a goshawk (*A. gentilis*). Non-migrating species included the greater prairie chicken (*T. cupido*), the sharp-tailed grouse (P. phasianellus), and red-winged blackbird (*Agelaius*).

As with the fishes, the greatest frequency of bird remains and the largest diversity of bird types is present in Feature 2. Over

TABLE 51

DISTRIBUTION OF FISHES USING MINIMUM NUMBER OF INDIVIDUALS

SPECIES	NON-FEATURE	FEATURE 1	FEATURE 2	FEATURE 3	SITE TOTALS
Hiodon sp.		1	6		7
Coregonus clupeaformis			2	1	3
Catostomidae			1		1
Stizostedion sp.			1		1
Lota lota				1	1
Ictaluridae			2		2
Aplodinotus grunniens	1				1
Feature Totals	1	1	12	2	16
Per Cent	6	6	75	13	100

60 per cent of bones examined from this feature account for the presence of the same MIND proportion (Table 53). There were 21 birds represented by diagnostic bone elements from surface and feature recoveries. The elements used to determine MIND are noted in the appendix (Table 63).

Four of the identified bird types from the site belong to *Anas* sp, or duck. These include *A. crecca*, *A. acuta* and *A. clupeata*, the green-winged teal, pintail and northern shoveller, respectively. The fourth is mentioned in tables as *Anas** sp. There was some difficulty in the identification of the elements under this heading, in part because of the difficulties inherent in distinguishing between mallards and black-ducks. These two birds are skeletally very similar and can both be found

TABLE 52

DISTRIBUTION OF BIRD REMAINS

SPECIES	NON-FEATURE #	NON-FEATURE %	FEATURE 1 #	FEATURE 1 %	FEATURE 2 #	FEATURE 2 %	FEATURE 3 #	FEATURE 3 %	TOTAL %
Anser albifrons			1	25					3
*Anas** sp					3	17	1	20	14
Anas acuta	1	50							3
A. crecca					3	17			10
A. clupeata							2	40	7
Aythya collaris							1	20	3
A. affinis			2	50	1	6			10
M. deglandi					2	11			7
L. cucullatus			1	25	1	6	1	20	10
Accipiter gentilis					1	6			3
Buteo sp.	1	50			2	11			10
T. cupido					1	6			3
P. phasianellus					3	17			10
Agelaius sp.					1	6			3
Feature Totals	2		4		18		5		n - 29
Per Cent in Feature	7		14		62		17		

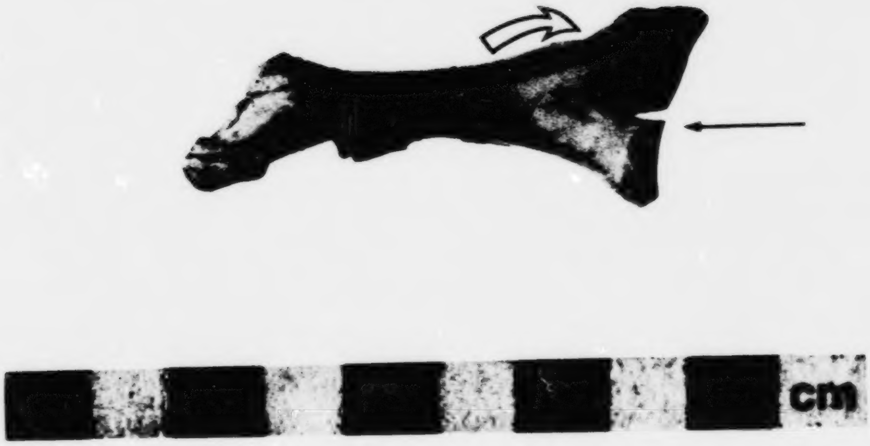


FIGURE 84 Left humerus of hawk.

TABLE 53

DISTRIBUTION OF AVIFAUNA USING MINIMUM NUMBER OF INDIVIDUALS

SPECIES	NON-FEATURE	FEATURE 1	FEATURE 2	FEATURE 3	SITE TOTALS
Anser albifrons		1			1
*Anas** sp.			2		2
A. acuta	1				1
A. crecca			3		3
A. clypeata				2	2
Aythya collaris				1	1
Aythya affinis		2			2
M. deglandi			1		1
L. cucullatus		1	1		2
Accipiter gentilis			1		1
Buteo sp.			1		1
T. cupido			1		1
P. phasianellus			2		2
Agelaius sp.			1		1
Feature Totals	1	4	13	3	21
Per Cent	5	19	62	14	100

using the Arctic migration route. Further, with at least one of the elements concerned, there was some similarity between it and the comparative specimen from a merganser. Because of these difficulties, the four elements were placed in this more general category.

Small Mammal

Four species of indigenous small mammal were identified from a variety of bone material. These included hare/rabbit (*Leporidae*), muskrat (*O. zibethicus*), Richardson's ground-squirrel (*C. richardsonii*) and striped skunk (*M. mephitis*). One other small mammal is included but is not indigenous to the area. This is the house cat (*Felis domestica*) This specimen is represented by opposite sides of the mandibular body, the sizes of which tend to support the presence of two individuals. Skunk (*M. mephitis*) is also minimally represented and identification is made from a complete cranium, mandible and atlas. No other bones from either of these species were found.

The distribution of elements identified to animal type (Table 54) does not reflect the distribution of minimum numbers. Excluding the house cat, MIND calculations indicate that Feature 2 was heavily used for the disposal of small indigenous mammal remains (Table 55). With the exception of a single Leporid in Feature 1, small mammals are restricted to Feature 2 while some are from the non-feature provenience.

TABLE 54

DISTRIBUTION OF SMALL MAMMALS

FAMILY OR SPECIES	NON-FEATURE	FEATURE 1	FEATURE 2	FEATURE 3	SITE TOTALS	%
Leporidae						
frequency	11	26	15	7	59	52
per cent	39	96	33	88		
% at site	19	44	25	12		
O. zibethicus						
frequency	15	0	25	1	41	38
per cent	54		54	12		
% at site	37		61	2		
F. domestica						
frequency	1	0	1	0	2	2
per cent	3		2			
% at site	50		50			
C. richardsonii						
frequency	1	1	3	0	5	5
per cent	3	4	7			
% at site	20	20	60			
Mephitis mephitis						
frequency	0	0	2	0	2	2
per cent			4			
% at site			100			
TOTAL ELEMENTS	28	27	46	8	109	100
% IN FEATURE	27	25	42	7		

Large Mammal

Domestic Mammals

With the exception of a single species identified as *Bison bison*, all species in this category are common domestic animals. These include pig (*Sus scrofa*), cow (*Bos taurus*), and horse (*Equus* sp.). Remains of *Sus* were recovered from each of the three features (Table 56) but elements used to calculate MIND were recovered exclusively from Feature 2 (Table 55). Remains from *Bos*, *Equus* and *Bison* were concentrated in Feature 2 and represented single individuals from each species. Butchering marks observed on bones from large and indigenous mammals and the elements used to calculate MIND are noted in Table 65 of the appendix. Some of the butchered bones appear in Figure 85.

Unidentified Butchered Bone

The preferred tool for butchering large mammal ribs was the axe, suggested by the high frequencies of breaks caused by this tool. Thirty-four of 37 breaks examined at Locations A and B were of types W, X, X' and Y, all of which use the axe as a butchering tool (Table 57). Three other breaks present at Locations A and B are the result of being smashed and do not show signs of cutting or chopping. Blows from an axe were directed to internal and external surfaces of the ribs at A and B. Seventeen breaks were made from the inside and 6 were made from the outside surface (Figure 86).

Breaks located at the proximal ends of the ribs (Section 1) were directed in various ways to the head of the rib (Figure 87). These

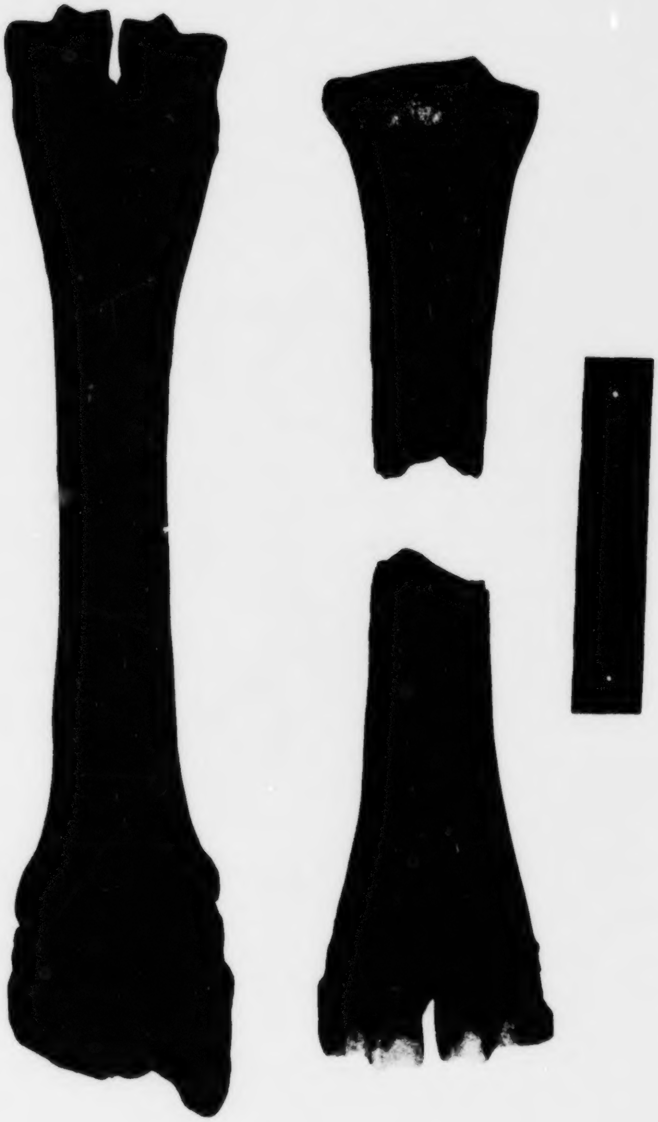


FIGURE 85 Butchered metacarpals.

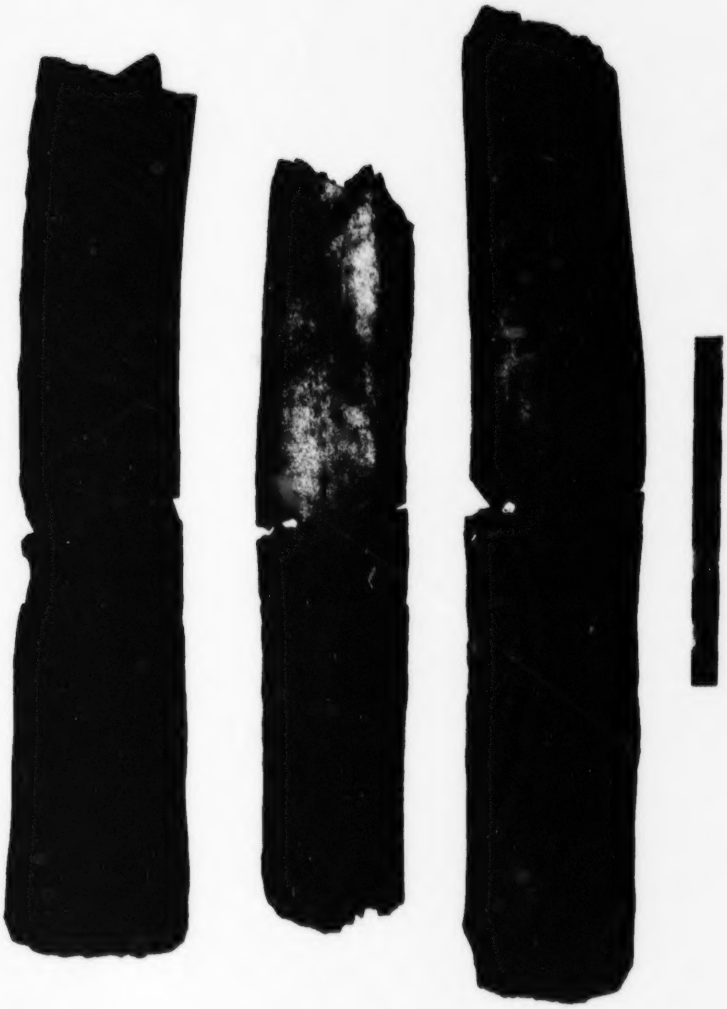


FIGURE 86 Butchered ribs.

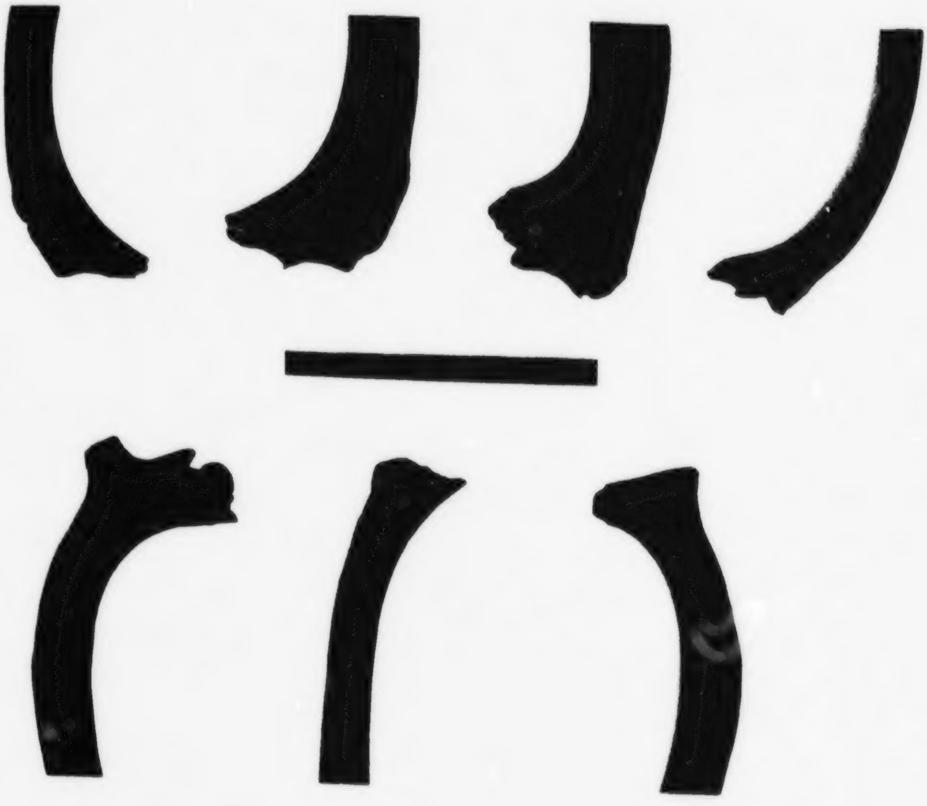


FIGURE 87 Proximal rib sections.

TABLE 55

DISTRIBUTION OF MAMMALS USING MINIMUM NUMBER OF INDIVIDUALS

FAMILY OR SPECIES	NON-FEATURE	FEATURE 1	FEATURE 2	FEATURE 3	SITE TOTALS
Leporidae	2	1	5		8
Ondatra zibethicus	4		4		8
Mephitis mephitis			1		1
Citellus richardsoni	1		2		3
Felis domestica			1		1
Sus scrofa			3		3
Bos taurus			1		1
Bison bison			1		1
Equus sp.			1		1
FEATURE TOTALS	7	1	19	0	27
PER CENT	26	4	70	0	100

breaks were intended to disarticulate the rib and the vertebrae once the tenderloin had been removed. These were either smashed away or chopped with an axe. Locations included C, D, D' and D" in frequencies of 2, 2, 4, and 1, respectively.

Cuts made by a knife blade were commonly seen on all three sections of the rib. The highest frequency occurred on the first section where more than 30 cuts of both types were seen. Three types of cuts were observed on bone sections. The first (Type I or K) was always in association with a break location. Apparently, bones were scored with a blade as a guide for rib sectioning. Of a total of 37 breaks caused by

TABLE 56

DISTRIBUTION OF LARGE AND DOMESTIC ANIMALS

SPECIES	FEATURE 1	FEATURE 2	FEATURE 3	SITE TOTALS	%
Sus scrofa					
frequency	3	17	2	22	55
per cent	100	50	66		
% at site	14	77	9		
Bos taurus					
frequency	0	8	0	8	20
per cent		24			
% at site		100			
Bison bison					
frequency	0	3	1	4	10
per cent		9	33		
% at site		75	25		
Equus sp.					
frequency	0	6	0	6	15
per cent		18			
% at site		100			
TOTAL ELEMENTS	3	34	3	40	100
% IN FEATURE	8	85	8		

TABLE 57

ANALYSIS OF BUTCHERED RIBS

LOCATION	TYPE OF BREAK							CUTS		ASPECT				
	U	V	W	X	X'	Y	Z	K	OTHER	INTERIOR	EXTERIOR	TOP	?	TOTAL
Section 1														
B		2	1	6		1		4		5	3	1	1	10
C		1		1						0	0	0	2	2
D	1			2				1		0	2	1	0	3
D'		4						3		0	0	2	2	4
D''						1				0	0	1	0	1
Type I								8						
Type II									25					
Section 2														
A			2	6				2		5	3	0	0	8
B			3	3	2			2		5	2	1	0	8
Type I								4						
Type II									7					
Section 3														
A			2	5		2		2		7	0	0	0	7
Type I								2						
Type II									2					

an axe, 14 were accompanied by scoring marks of the type shown in Figure 86.

The second type of cut (Type II) occurs as an oblique cut usually on the proximal sections (Section 1) of the ribs. These are interpreted as having been caused by skinning or stripping the meat. There were relatively few of these cuts, however. An additional type of cut does not appear to be associated with either of the above butchering steps. These cuts appear as apparently random marks occurring anywhere on the rib surface (Figure 86).

Several Type II cuts appear as a series of diagonal marks on two of the first sections of rib (Figure 88).

Comparison of Feature Contents

If the features discovered at the Garden Site had been used either in different seasons of the year or had been used synchronously for different purposes, then the distribution of fishes, birds and mammals should reflect these differences. If, however, features were used for the same purpose at the same time, then the distribution of the remains representing the four faunal classes should not be significantly different.

One additional variable to consider is the possibility that the different features were used at different times by different site occupants. This may be reflected by differences in the distribution of selected faunal components.

In order to test for significant differences in the faunal distribution, chi-square (X^2) tests (Thomas 1976) were used to compare

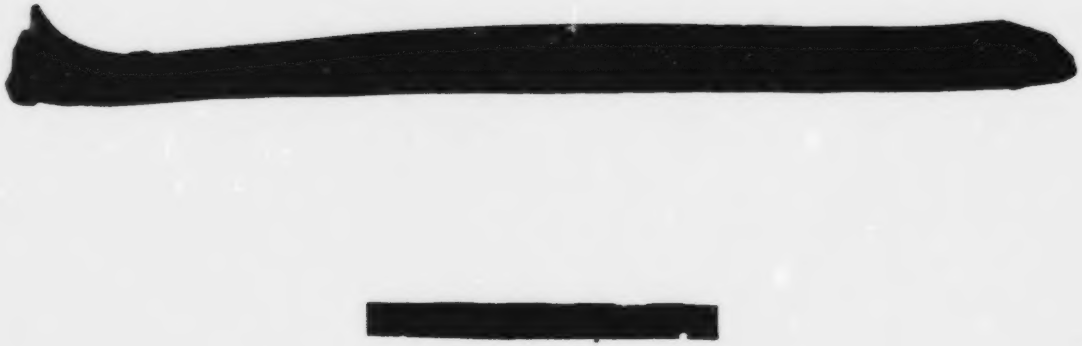


FIGURE 88 Butchered rib.

(a) the frequencies of identified bones for each faunal class and (b) the bone elements used in making estimates of the minimum numbers of individuals within each class (MIND). These results appear in Table 58. "Expected" values are calculated from the volume of each feature relative to the total volume from all three features. Proportions were for Feature 1 (.24), Feature 2 (.51) and Feature 3 (.25). Of five X^2 tests performed for the distributions of scales and bones, three of the resulting probabilities were significant ($p < 0.005$). These probabilities were for the bones of fishes and for large and small mammals. The test for the distribution of identified domestic and large mammal has the greatest probability that there was a bias in the distribution of these remains ($p < 0.001$). Both fish scale and bird bones are distributed randomly.

As fish scales were not indicative of MIND, they were not used to determine differences in distribution. Of the remaining comparisons, three suggest random distributions while only the probability for small indigenous animals is significant ($p < 0.025$). This suggests that only this faunal class was discarded in a purposeful way.

This apparently non-random distribution of small mammal remains can best be explained by reference to butchering practices. While there were only nine bones from the features found to exhibit evidence of butchering (i.e., obvious knife cut and chop marks), seven or 78% of these were associated with Feature 2 (Table 59). It is likely that Feature 2 was the preferred location for disposing of butchered animal remains, not only of the small indigenous mammals, but also of the large and domestic animals identified to Feature 2 (Table 65). Many of

TABLE 58

RESULTS OF CHI-SQUARE TESTS[a] FOR ELEMENT FREQUENCIES AND MINIMUM NUMBER OF INDIVIDUALS

	FEATURE 1	FEATURE 2	FEATURE 3	X^2	p
Frequencies					
Fish scales	10	31	16	= 1.32	0.5
Fish bones	2	28	7	= 9.30	0.005*
Bird bones	4	18	5	= 4.88	0.1
Indigenous mammal	27	45	8	=10.71	0.005*
Domestic mammal	33	34	3	=22.06	0.001*
Minimum Number of Individuals					
Fish	1	12	2	= 5.13	0.01
Bird	4	13	3	= 1.60	0.25
Indigenous mammal	1	12	0	= 9.14	0.025*
Domestic mammal	0	6	0	= 5.61	0.01

[a] degrees of freedom = 2

TABLE 59

DISTRIBUTION OF BUTCHERED SMALL MAMMAL REMAINS BY FEATURE

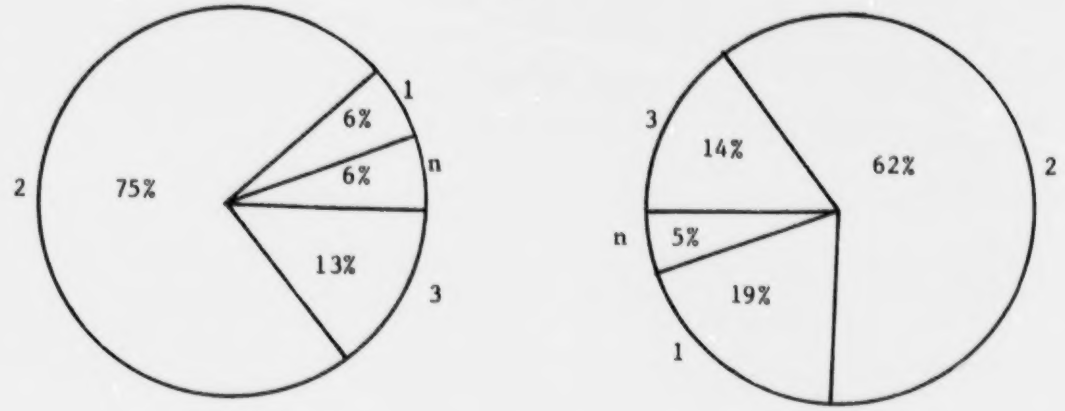
FAMILY OR SPECIES	FEATURE 1	FEATURE 2	FEATURE 3	TOTAL
Leporidae	1	3	1	5
O. zibethicus	0	3	0	3
M. mephitis	0	1	0	1
TOTAL	1	7	1	9

these were also butchered and there were a few cases of a group of articulating bone elements found _in situ_. These cases indicate that at least some of the remains were discarded with adhering soft tissues. While it is not known if the smaller mammal remains were discarded in this condition, the presence of soft tissue in the feature would mitigate against having this feature located in the immediate vicinity of the house because of the discomfort resulting from the putrifaction of such tissues. It is also possible that the presence of larger butchered mammal remains in Feature 2 indicates that it was close to the location where butchering was performed. While the distribution of this class was not significant for MIND, the exclusive occurrence of identified large mammal remains in Feature 2 supports this suggestion (Figures 89 and 90).

Conclusions

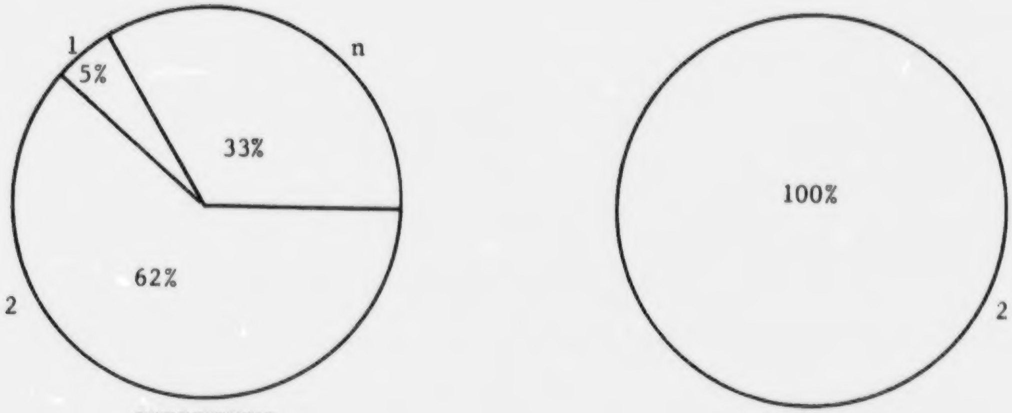
In this study, a faunal sample was examined to determine the characteristics of the Garden Site subsistence economy. Bones were identified where possible and frequencies of identified bones or scales used for intra-site and inter-feature comparisons.

Despite the small size of the total sample, a considerable variety of genera and species of fishes, birds and mammals was represented in the assemblage (Table 60). Evidently, domestic animal resources were supplemented by small numbers of indigenous animals, birds and fishes. Though the remains of fresh-water bivalves were also represented, these are only a minute component of the entire



FISH
(n=21)

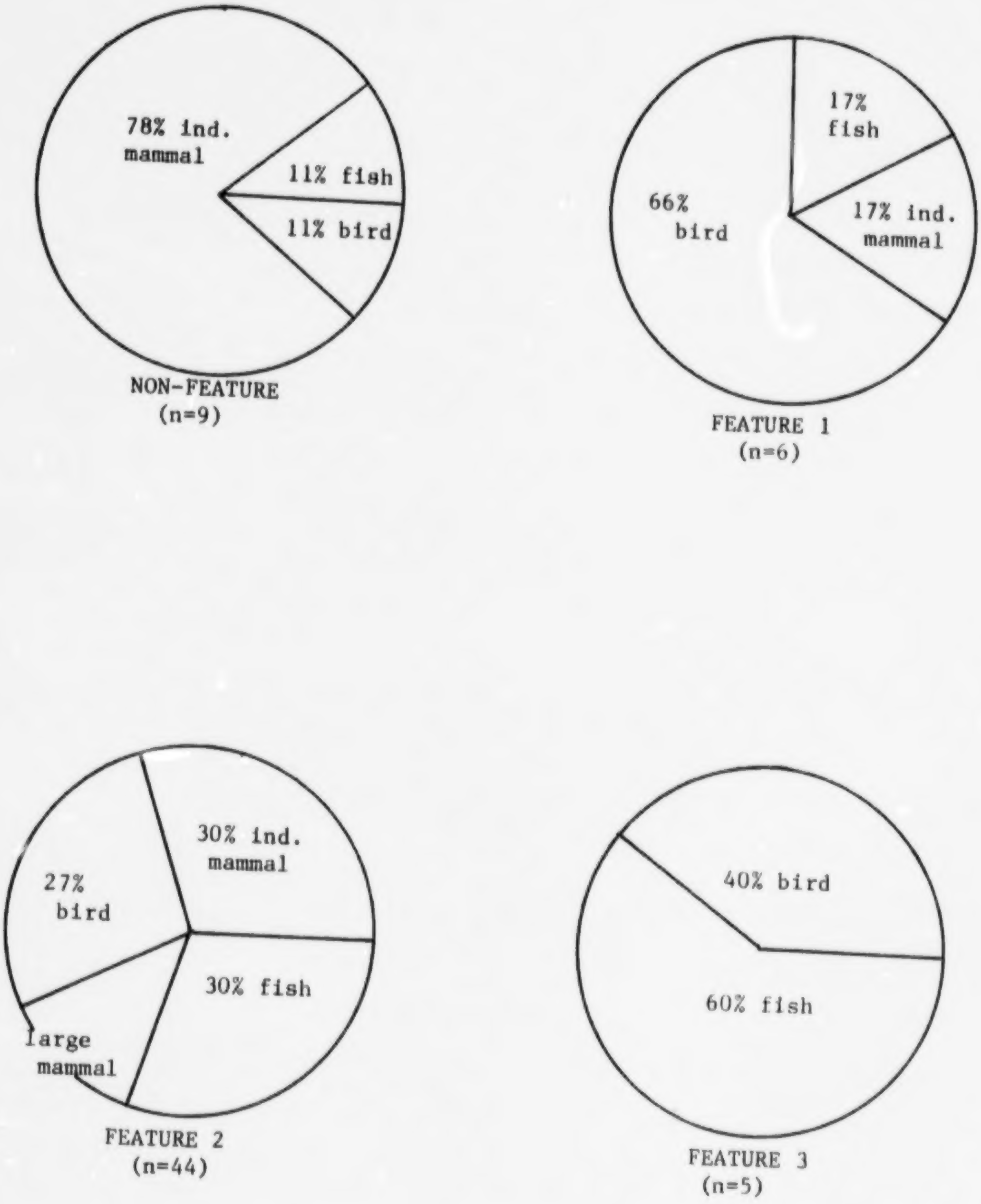
BIRD
(n=16)



INDIGENOUS
MAMMAL
(n=21)

LARGE
MAMMAL
(n=6)

FIGURE 89 Distribution of individuals (MIND) at the Garden Site.



NON-FEATURE
(n=9)

FEATURE 1
(n=6)

FEATURE 2
(n=44)

FEATURE 3
(n=5)

FIGURE 90 Minimum number of individuals (MIND) by feature.

recovery. Thus, the location of the site permitted some exploitation of both terrestrial and riverine resources and also provided access to a wide variety of migrating birds.

Domestic animals included the house cat as well as larger farm animals such as cow, horse and pig. Pigs were the most numerous, with three individuals of several ages being represented. A single bison was also identified from the site. Butchering was performed using axes, knives and saws.

Testing for significant differences in the in situ distribution of faunal remains indicate that there was no difference between the features at the site, other than the possibility that Feature 2 was preferred because of its location relative to the house and butchering area as the principal dumping area for butchered bone.

While many of the genera and species identified in fish, bird and mammal classes were mutually exclusive for the features where they occurred (Tables 51, 53, and 55), there was no conclusive evidence to suggest either site or feature seasonality. Seasonality for the site is tentatively based upon the presence of migrating birds (Table 61) and is suggested to be either the spring of the fall. There is more likelihood that the spring occupation is more definite due to the presence of butchered remains from a very young pig (Figure 91). This presumes that pigs commonly gave birth in the early spring.

Finally, an analysis of butchered ribs from unidentified large mammal (cow? horse? bison?) shows that ribs were removed from the carcass and butchered with an axe and subsequently divided into three sections (Figures 86, 87 and 92). The use of these sections is not precisely known but the practice suggests the manufacture of bone grease or glue (Bonnichsen 1973). The sections, once rendered useless, were discarded with the other butchered bone.

TABLE 60

SPECIES AND GENERA FROM THE GARDEN SITE

TAXONOMIC NAME	COMMON NAME
Anser albifrons	white-fronted goose
Anas sp.	(includes mallard, black duck and mergansers)
Anas acuta	pintail
Anas crecca	American green-winged teal
Anas clypeata	northern shoveller
Aythya collaris	ring-necked duck
Aythya affinis	lesser scaup
Melanitta deglandi	white-winged scoter
Lophodytes cucullatus	hooded merganser
Mergus serrator	red-breasted merganser
Accipiter gentilis	goshawk
Buteo sp.	hawk genus
Tympanuchus cupido	greater prairie chicken
Pedioecetes phasianellus	sharp-tailed grouse
Agelaius spp.	blackbird
Hiodon sp.	goldeye, mooneye
Coregonus clupeaformis	lake whitefish
Catostomidae	sucker family
Stizostedion sp.	walleye, sauger
Lota lota	burbot, "maria"
Ictaluridae	catfish family
Aplodinotus grunniens	freshwater drum
Leporidae	hares and rabbits
Ondatra zibethicus	muskrat
Mephitis mephitis	striped skunk
Citellus richardsonii	Richardson's ground squirrel
Felis domestica	house cat
Sus scrofa	domestic pig
Bos taurus	domestic cow
Bison bison	bison "buffalo"
Equus sp.	horse

TABLE 61

SPRING AND FALL OCCURENCE FOR MIGRATORY SPECIES

SPECIES	J	F	M	A	M	J	J	A	S	O	N	D
Anser albifrons (white-fronted goose)			mid	----------	mid				late	--late		
Anas platyrhynchos (mallard)			early	--------	early				early	--------	late	
Anas rubripes (black duck)			late	--------	early				early	---------------	---------------	early
Anas acuta (pintail)			early	---------	mid				early	---------------	---------------	early
Anas crecca (green-winged teal)			mid	----------	late			late	----------------------	----------------------	----------------------	early
Anas clypeata (shoveller)			mid	----------	mid				early	---------------	---------------	early
Aythya collaris (ring-necked duck)			mid	----------	late				late	----------------	----------------	early
Aythya affinis (lesser scaup)		late	----------------------	----------------------	----------------------	mid			mid	----------------	----------------	early
Melanitta deglandi (white-winged scoter)				early	---------	early				mid	-----------	early
Lophodytes cucullatus (hooded merganser)			mid	----------	mid				early	---------------	---------------	mid
Mergus serrator (red-breasted merganser)			mid	----------	late				early	---------------	---------------	mid
Accipiter gentilis (goshawk)		late	--------------	--------------	early				mid	----------------	----------------	early

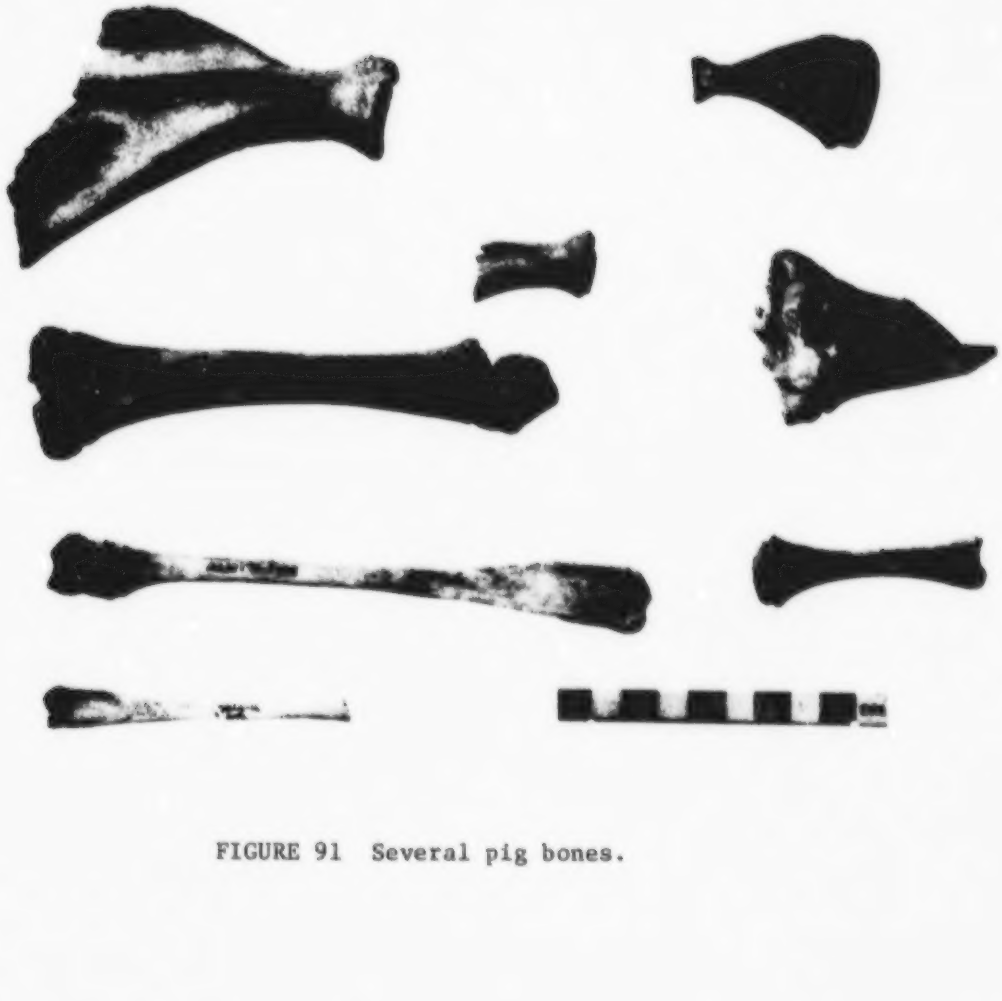


FIGURE 91 Several pig bones.

FIGURE 92 Complete rib, butchered into three fragments.

APPENDIX 7-1

Faunal Analysis Data

TABLE 62

IDENTIFIED FISH REMAINS

CAT. #	ELEMENT[+]	LEVEL	IDENTITY	DISTINGUISHING MARKS	FEATURE	n[1]
516	scale	4	*A. grunniens*	nuptual tbls.	n	
1170	scale	?	*C. clupeaformis*		?	
1191	scale	6	*C. clupeaformis*		2	
1243	L21	8	*C. clupeaformis*		2	*
1243	L33	8	*C. clupeaformis*		2	
1254	scale	14	?		2	
1382	R21	6	*Hiodon* sp.		2	
1393	scale	5	?		2	
1786	scale	8	*Hiodon* sp.		n	
1958	scale	5	*Hiodon* sp.		n	
2028	scale	4	*Hiodon* sp.		2	
2078	scale	6	*Hiodon* sp.		2	
2107	R13	1	Ictaluridae		2	*
2136	scale	2	*Hiodon* sp.		1	
2201	scale	6	*Hiodon* sp.		n	
2206	scale	13	Catostomidae		2	
2221	scale	13	*Stizostedion* sp.		2	
2237	scale	4	*Hiodon* sp.		1	
2263	scale	14	*Stizostedion* sp.		2	
2289	scale	6	*Hiodon* sp.		n	
2390	scale	14	*Hiodon* sp.		2	
2404	scale	4	*Hiodon* sp.		3	
2404	scale	4	?		3	
2425	scale	15	*C. clupeaformis*		2	
2476	scale	6	*Hiodon* sp.		1	
2476	scale	6	(*Hiodon* sp.)		1	
2480	scale	6	*C. clupeaformis*		1	
2489	scale	4	Catostomidae		3	
2501	scale	4	Catostomidae		3	
2501	scale	4	(Catostomidae)		3	
2530	scale	5	Catostomidae		3	
2532	L27	5	*Lota lota*		3	
2532	?	5	(*Lota lota*)		3	
2652	scale	9	*Hiodon* sp.		1	
2652	scale	9	(*Hiodon* sp.)		1	
2717	L34	8-9	*C. clupeaformis*		2	
2717	L21	8-9	*Hiodon* sp.		2	*
2730	scale	10	Catostomidae		2	
2730	scale	10	*Hiodon* sp.	nuptual tbls.	2	
2737	R18	11	*Hiodon* sp.		2	
2740	L52	11	Catostomidae		2	*
2740	R52	11	(Catostomidae)		2	
2741	scale	11	*C. clupeaformis*		2	

CAT. #	ELEMENT	LEVEL	IDENTITY	DISTINGUISHING MARKS	FEATURE	n[1]
2758	scale	11	?		2	
2760	L21	11	*Hiodon* sp.		2	*
2765	L21	12	*Hiodon* sp.		2	*
2767	R18	12	*Hiodon* sp.		2	
2799	scale	9	*Hiodon* sp.		2	
2826	scale	10	Catostomidae		1	
2826	scale	10	*Stizostedion* sp.		1	
2839	scale	11	?		1	
2865	R18	8	*Hiodon* sp.		2	
2882	/29	6	*Lota lota*		3	
2883	R10	6	*Lota lota*		3	*
2910	scale	9	*C. clupeaformis*		2	
2926	scale	7	?		2	
2985	scale	6	*Hiodon* sp.		2	
2996	53	6	*C. clupeaformis*		3	*
2996	scale	6	*Hiodon* sp.		2	
3001	scale	9	?		2	
3002	scale	10-11	*C. clupeaformis*		2	
3004	scale	11	Catostomidae		2	
3004	L11	11	*Hiodon* sp.		2	
3004	R24	11	(*Hiodon* sp.)		2	
3073	L1	5	*C. clupeaformis*		2	
3125	?	9	*Lota lota*		3	
3148	scale	7	*Hiodon* sp.		3	
3149	scale	7	*C. clupeaformis*		3	
3149	scale	7	(*C. clupeaformis*)		3	
3160	R11	15-16	*Hiodon* sp.		2	
3160	scale	15-16	*Hiodon* sp.	lateral line	2	
3180	scale	6	*Hiodon* sp.		3	
3185	?	9	*Lota lota*		3	
3202	L21	10-11	*Hiodon* sp.		2	*
3221	L21	11	*Hiodon* sp.		2	*
3231	scale	10	*Hiodon* sp.		1	
3234	scale	10	?		1	
3244	scale	14	Catostomidae		2	
3244	R21	12	*Hiodon* sp.		2	
3260	scale	12	*C. clupeaformis*		2	
3260	scale	12	Catostomidae		2	
3275	R21	5-7	*Hiodon* sp.		2	
3277	scale	12	*Hiodon* sp.		2	
3293	L1	6	*C. clupeaformis*		2	
3297	scale	14	Catostomidae		2	
3311	R13	15-16	*Stizostedion* sp.		2	*
3311	R14	15-16	(*Stizostedion* sp.)	butchered	2	
3323	scale	15-16	*Hiodon* sp.		2	
3348	scale	7	*Hiodon* sp.		3	
3382	scale	6	Catostomidae		3	

CAT. #	ELEMENT	LEVEL	IDENTITY	DISTINGUISHING MARKS	FEATURE	n[1]
3491	scale	9	?		3	
3496	scale	12	*C. clupeaformis*		3	
3520	L21	8-14	*Hiodon* sp.		2	*
3520	R13	8-14	Ictaluridae		2	*
3533	scale	13-14	*C. clupeaformis*		2	
3548	scale	13-14	*Hiodon* sp.		2	
3548	scale	13-14	*C. clupeaformis*	nuptual tbls.	2	
3575	scale	9	*C. clupeaformis*		2	
3585	scale	7-8	*Hiodon* sp.		2	
3603	scale	13-14	*C. clupeaformis*		2	
3605	scale	15-16	*Hiodon* sp.		2	
3605	L21	15-16	*C. clupeaformis*		2	*
3605	L33	15-16	*Hiodon* sp.		2	
3642	scale	11-12	*C. clupeaformis*		2	
3645	scale	13-14	*Hiodon* sp.		2	
3661	scale	15-16	*Hiodon* sp.		1	
3675	scale	19	*C. clupeaformis*		1	
3715	scale	13	*C. clupeaformis*		3	
3723	L21	5	*Hiodon* sp.	butchered	1	*
3723	L33	5	(*Hiodon* sp.)		1	
3783	scale	5-10	*Hiodon* sp.		3	
3796	scale	14-16	*Hiodon* sp.		3	
1321	otolith	3	*Aplodinotus grunniens*		n	*

[1] indicates element used in assessment of minimal count

+ indicates an unknown element from a known fish (?)

TABLE 63

IDENTIFIED BIRD REMAINS

CAT. #	ELEMENT	LEVEL	IDENTITY	DISTINGUISHING MARKS	FEATURE	n[1]
308	L2	0	*Anas** sp.		3	
727	L1	4	*Buteo* sp.	cut marks	2	
837	L2	3	*Anas** sp.		2	
1042	R3	3	*A. affinis*	cut through	2	
1356	L1	9	*Anas** sp.		2	*
1592	L3	4	*A. acuta*		n	*
1649	L2	2	*Buteo* sp.		n	
2058	L4	6	*A. gentilis*		2	*
2228	R1	4	*L. cucullatus*		1	*
2408	R1	15	*L. cucullatus*	cut marks	2	*
2665	L3	5	*Buteo* sp.		2	*
2712	L2	8-9	*A. crecca*		2	*
2719	cranium	8-9	*Agelaius* sp.		2	*
2727	L2	10	*A. crecca*		2	*
2911	L2	9	*A. crecca*		2	*
2915	L4	10	*M. deglandi*		2	*
2951	L1	8	*L. cucullatus*		3	
2991	L1	6	*A. collaris*		3	*
3110	L2	12	*A. affinis*		1	*
3139	L2	7	*A. clypeata*		3	*
3140	L2	7	*A. clypeata*		3	*
3167	L2	13	*A. affinis*		1	*
3264	L1	12	*Anas** sp.	cut & tooth marks	2	*
3551	L2	13-14	*P. phasianellus*		2	
3618	L2	11-12	*T. cupido*		2	*
3624	L1	7-8	*M. deglandi*	rodent tooth marks	2	
3671	L3	19	*A. albifrons*	cut marks	1	*
3972	R2	11	*P. phasianellus*		2	*
3973	R2	11	*P. phasianellus*		2	*

[1] indicates element used in assessment of minimal count

TABLE 64

IDENTIFIED SMALL MAMMAL
THE GARDEN SITE: DkLg-16

CAT. #	ELEMENT	IDENTITY	MODIFIED	FEATURE	n[1]
91	R-mandible	Leporidae		n	
106	L-ulna	Leporidae		n	
107	R-mandible	Leporidae		n	
203	R-scapula	Leporidae		n	
213	R-tibia	*O. zibethicus*		n	
241	R-innominate	*O. zibethicus*	cut marks	2	
255	R-innominate	*O. zibethicus*	cut marks	n	
256	R-innominate	Leporidae		2	*
297	R-humerus	*O. zibethicus*	cut marks	2	*
394	L-mandible	*O. zibethicus*		2	
416	R-mandible	*Felis domestica*		2	*
420	L-mandible	*O. zibethicus*		2	
431	L-tibia	*O. zibethicus*		2	
454	L-innominate	*O. zibethicus*		2	
531	R-tibia	*O. zibethicus*		2	
537	L-mandible	*C. richardsonii*		n	*
538	L-tibia	*O. zibethicus*		n	
575	R-innominate	Leporidae		n	*
627	R-tibia	*O. zibethicus*		2	
628	L-mandible	*O. zibethicus*		2	
673	R-ulna	Leporidae		n	
700	R-humerus	Leporidae		2	
733	L-scapula	*O. zibethicus*		2	
756	L-mandible	*O. zibethicus*		n	
784	L-mandible	*O. zibethicus*		n	
795	R-ulna	Leporidae		3	
814	L-innominate	Leporidae	chopped	n	
904	R-humerus	*O. zibethicus*		n	*
984	R-mandible	*O. zibethicus*		n	
1032	R-innominate	*O. zibethicus*		2	
2368	R-tibia	*O. zibethicus*		2	
2507	R-mandible	Leporidae		3	
2514	R-innominate	Leporidae	cut marks	2	*
2537	A-sacrum	Leporidae		1	
2557	L-maxilla	Leporidae		3	
2645	R-humerus	Leporidae		1	
2647	L-innominate	Leporidae		1	
2673	L-mandible	*C. richardsonii*		2	*
2886	L-humerus	Leporidae		3	
2908	L-maxilla	Leporidae		2	
2965	R-humerus	*O. zibethicus*		2	*
2988	R-ulna	Leporidae	cut marks	3	
3024	L-tibia	*O. zibethicus*		2	
3027	L-mandible	*C. richardsonii*		2	*

CAT. #	ELEMENT	IDENTITY	MODIFIED	FEATURE	n[1]
3029	L-tibia	Leporidae	diaphysis	2	
3047	L-innominate	Leporidae	cut marks	2	
3171	L-innominate	Leporidae		3	
3324	L-humerus	*O. zibethicus*		2	
3368	R-tibia	Leporidae	diaphysis	2	
3421	L-femur	Leporidae		1	
3422	R-mandible	*C. richardsonii*		1	
3486	L-tibia	Leporidae	proximal end	1	
3570	R-innominate	*O. zibethicus*		2	
3572	R-innominate	Leporidae	cut marks	2	*
3583	R-tibia	*O. zibethicus*		2	
3597	L-tibia	*O. zibethicus*		2	
3669	R-scapula	Leporidae		1	
3688	R-humerus	Leporidae		1	
3689	R-ulna	Leporidae		1	
3690	R-radius	Leporidae		1	
3710	R-innominate	Leporidae	cut mark	1	*
3816	R-innominate	Leporidae	proximal	1	
3817	L-humerus	Leporidae		1	
3834	R-radius	Leporidae		1	
3835	R-ulna	Leporidae		1	
3848	R-mandible	Leporidae		1	
3859	L-innominate	Leporidae		1	
3863	L-ulna	Leporidae		1	
3865	L-radius	Leporidae		1	
3869	L-tibia	Leporidae	distal	1	
3873	L-scapula	Leporidae		1	
3880	L-scapula	Leporidae		1	
3893	L-humerus	Leporidae		3	
(4059)	skeleton	*C. richardsonii*	(intrusive)		
4129	L-maxilla	Leporidae		1	
4130	L-scapula	Leporidae		1	
4131	L-premaxilla	Leporidae		1	
4132	R-premaxilla	Leporidae		1	

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[1] indicates element used in assessment of minimal count

() not considered to be artifactual

TABLE 65

IDENTIFIED LARGE AND DOMESTIC MAMMALS

CAT. #	ELEMENT	IDENTITY	MODIFIED	FEATURE	n[1]
1381	R-fibular tarsal	*Equus* sp.		2	*
2059	R-scapula	*Sus scrofa*		2	
2410	L-scapula	*Sus scrofa* (very young)		1	
2631	R-scapula	*Sus scrofa*	cut marks	1	
2729	? second phalanx	*Bos taurus*		2	
2851	A-thoracic vertebra	*Sus scrofa*	chopped	2	
3065a	R-tibia	*Sus scrofa*	cut marks	2	*
3065b	-proximal epiphysis	*Sus scrofa*			
3065c	-distal epiphysis	*Sus scrofa*			
3138	? third pha phalanx	*Bison bison*		3	
3199	L-fibula	*Sus scrofa* (very young)		1	
3211a	R-metatarsal	*Bos taurus*	smashed	2	
3211b	-central & 4th tarsal	*Bos taurus*	cut marks		
3211c	-2nd and 3rd tarsal	*Bos taurus*			
3211d	-1st tarsal	*Bos taurus*			
3246a	L-tibia	*Sus scrofa*	chopped	2	*
3246b	-proximal epipysis	*Sus scrofa*			
3280a	A-thoracic vertebra	*Sus scrofa*	cut marks		
3280b	-thoracic vertebra	*Sus scrofa*	chopped & cut		
3280c	-epiphysis	*Sus scrofa*			
3280d	-epiphysis	*Sus scrofa*			
3280e	-epiphysis	*Sus scrofa*			
3282	R-central & 4th tarsal	*Equus* sp.	chopped	2	
3283	-first tarsal	*Equus* sp.		2	
3286	R-proximal metatarsal			2	
3518	L-maxilla	*Sus scrofa*	smashed	2	
3527	L-central & 4th tarsal	*Equus* sp.	chopped	2	
3528	L-proximal metatarsal	*Equus* sp.	smashed		

CAT. #	ELEMENT	IDENTITY	MODIFIED	FEATURE	n[1]
3540	L-proximal metacarpal	*Bison bison*	chopped	2	*
3541	-4th carpal	*Bison bison*			
3542	-2nd & 3rd carpals	*Bison bison*			
3559	R-distal metacarpal	*Bos taurus*	extensive cut marks & smashed	2	
3560	-proximal metacarpal	*Bos taurus*			
3592	R-maxilla	*Sus scrofa*	smashed	2	
3598	R-metatarsal	*Bos taurus*	cut marks	2	*
3788	R-fibula	*Sus scrofa*		3	
3794	-distal epiphysis	*Sus scrofa*			
3795a	R-tibia	*Sus scrofa* (very young)	cut marks	2	*
3795b	-distal epiphysis	*Sus scrofa*			
3934	R-thoracic rib	*Sus scrofa*	chopped	1	

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[1] indicates element used in assessment of minimal count

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CHAPTER VIII

CONCLUSIONS

Introduction

This final chapter attempts to answer the questions posed at the end of the third chapter, viz., is it possible to correlate archaeological materials and features with historically recorded individuals or populations? And, can one determine the "ethnicity" of the occupants based on recovered material, either the artifacts excavated or ecological evidence? These questions will be answered through a summary of the results of the artifact analysis, the specific history of the site, and the history of the Red River Settlement in general.

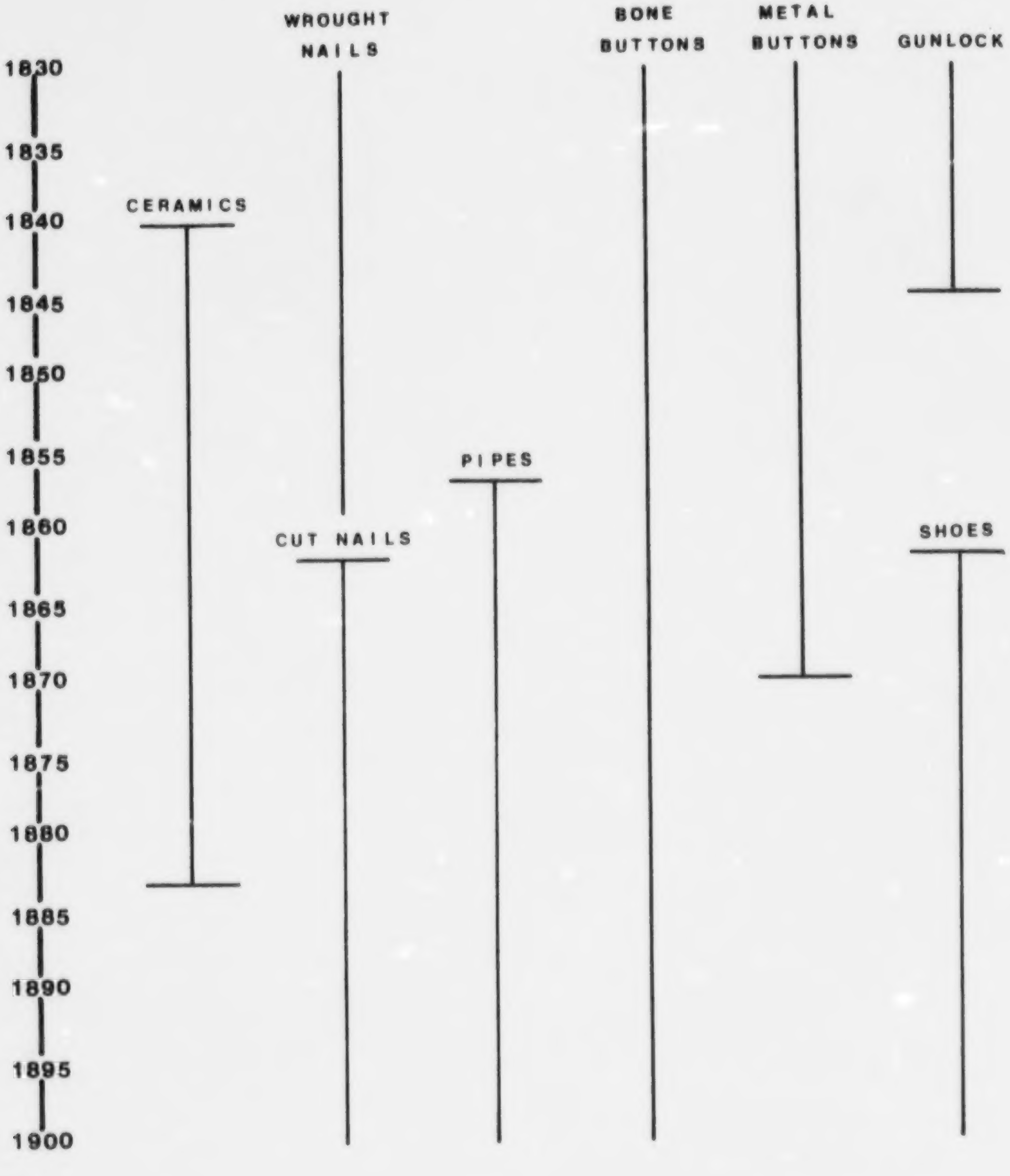
History and Archaeology

Relative dates of occupation

Only certain artifacts could be used to obtain relative dates. Those that could be dated include ceramics, nails, shoes, pipes, the gunlock and buttons (Table 66). In some cases, the dating guides were not too reliable, the buttons being a case in point. Possibly the most reliable are the ceramics, and from these a mean date of 1864 was calculated (Chapter 6, Table 24) for site occupation. A second technique can be used for obtaining relative dates of occupation using the ceramics, that being the "bracketing date" technique (South 1977). Only those types used for calculating the mean ceramic date were used to calculate the bracketed date (Table 67). However, a methodological

TABLE 66

ARTIFACTS THAT YIELD RELATIVE DATES



problem arises when utilizing the bracketing date to compare the archaeological materials with historical documentation, and it is a direct function of the wide temporal span of the dateable Copeland patterns. Recall that when the ceramic mean date was calculated, historical information was used to keep all temporal dates between 1845 (the time when Pierre Beauchamp purchased the lot) and 1892 (when the land was donated to the Trappists). If the artifacts are being used as an independant, correlative test, then it would defeat the purpose of this test if the same upper and lower limits were used based on historic information. The bracketed date was calculated using the lower limit date for each pattern as dated by Sussman (1979). An upper date of 1892 was used for those patterns that dated into the twentieth century, when Upper Fort Garry was closed. The result was a bracketing date of 1840.8 to 1883.7. This date is slightly longer than the known length of the Beauchamp occupation but may suggest that the site was occupied after Abraham Beauchamp sold his portion of Lot 81 in 1868 and Scholastique sold hers in 1872. The lower limit of the bracketing date, 1841, is reasonably close to the date of purchase by Pierre Beauchamp. Therefore, the dates suggested by the ceramics are relatively similar to those of the historical documentation.

The nails are perhaps the least reliable chronological markers. All three nail manufacturing processes (hand wrought, machine cut, and wire) were exhibited in the Garden Site nail assemblage and thus a time span from the late eighteenth century to the early twentieth century is represented. Rather than offering correlative data, the nails (and the other architectural artifacts) offer additional information and essentially fill in gaps where historical information is non-existent. The largest portion of nails were of the 3/4 inch, 1½ inch and 2½ inch variety and indicate a degree of interior finishing or perhaps exterior siding. They might further indicate that most of the nails are from a residence and not an outbuilding. This is based on the assumption that finishing (either interior or exterior) would most likely be done on a residence rather than a barn or stable. The chinking fragments indicated that either several buildings were standing on the site, logs were not of uniform size and shape, or that logs from several buildings had been reutilized. It is likely, based on squared log impressions, that most buildings were built in the Red River frame style.

An additional piece of information obtained from the analysis of the chinking was that agriculture was being practised in close proximity to the site. It further implies a more sedentary group of individuals than is otherwise suggested for the Metis (c.f. Harvard 1880).

The single, dateable shoe fragment indicated a date of post-1862. Since it was a surface recovery, however, it might not necessarily be related to the Beauchamp occupation, and hence its informative value is reduced.

The identified kaolin pipe suggested a date of sometime between 1856 and 1877 and, like the ceramics, covers the known time of occupation.

TABLE 67

CALCULATION OF THE GARDEN SITE BRACKETING DATE

Pattern Name	Initial Date	Count	Product	Terminal Date	Count	Product
Tuscan	1852	1	52	1892	1	92
Bramble	1847	7	329	1892	7	644
Watteau	1840	3	120	1892	3	276
B 700	1838	3	114	1847	3	141
B 772	1839	3	117	1892	3	276
B 773	1839	4	117	1847	4	188
Ivy	1845	3	135	1865	3	195
Beverly	1832	1	32	1892	1	92
Trademark	1847	1	47	1867	1	67
Ruins	1848	16	768	1892	16	1472
Flower Vase	1828	9	252	1892	9	828
TOTAL		51	2083		51	4271

Initial Date $\frac{2083}{51} + 1800 = 1840.8$ Terminal Date $\frac{4271}{51} + 1800 = 1883.7$

The gunlock suggested an early date but, by the same token, appeared anomalous to other locks of the same period. A possible explanation for this anomalous appearance may be that the lock was indeed manufactured in the late 1830s or early 1840s, but was used either extensively or over such a long period of time that several repairs were effected and it is the repairs that cause the morphology of the lock to be diagnostically ambiguous.

Although buttons are temporally diagnostic, the chronologies developed are not reliable when applied to button assemblages of the Canadian prairies, as is indicative of the Garden Site materials.

Comparisons with Pierre Beauchamp's assets

It was possible to trace the accumulation of Pierre Beauchamp's assets from 1838 to 1865 (see Chapter 3, Table 20) and this rudimentary inventory can be compared with the archaeological data. At no time was it possible to calculate family size from excavated material. No artifacts were recovered that suggested the presence of children, and the only artifacts that remotely indicated the presence of women were procelain and shell buttons and, to a lesser extent, the hook and eye fasteners. Therefore, the most basic unit of social organization, the nuclear family, could not be determined.

It was inferred archaeologically from the chinking fragments that there may have been three structures. In 1849, the Beauchamp farmstead comprised one house and two stables according to historical sources. On site, there was a correlation between these two observations; however, these structures could not be located through excavation.

Of the livestock listed, horses, cows and pigs were represented in the faunal remains. There was no indication of oxen but this is perhaps because oxen remains are virtually indistinguishable from cow.

It was not possible to obtain Pierre Beauchamp's economic orientation. It was assumed in Chapter 3 that the increase in the number of carts he owned was indicative of freighting endeavours. It was virtually impossible to distinguish this by the artifactual assemblage. Several of the unidentified ceramic designs, especially the hand-painted vessels, could perhaps have been manufactured in the United States and brought to the site after a trip to Saint Paul or Saint Cloud.

Comparisons with Red River environment and ethnohistory

This section uses the tabular data and the historical sections from the first and second chapters, respectively, and compares these with the artifactual recoveries from the Garden Site.

Resources

Of the eight species of wood utilized by the people of the Red River Settlement (Chapter 1, Table 5), seven species were identified through charcoal remains. However, it was difficult to determine if the wood represented by the charcoal was utilized in a similar circumstance as those listed in the table.

Of the wild species of mammals available in the natural environment, only rabbit, muskrat, the ground squirrel and bison were contained within the faunal remains. Skunk remains were also recovered but it is highly unlikely that this species was used for food.

Perhaps the avifauna offers the largest variety in terms of available species, and nine of those listed (Chapter 1, Table 8) were recovered in at least one of the middens. Species recovered in the midden but not listed include the hawk (*Buteo* sp.), the goshawk (*Accipter gentilis*), the hooded merganser (*L. cucullatus*), and the white-winged scoter (*M. deglandi*). Of particular interest is the hawk, which was represented by a left humerus that displayed butchering marks.

Of the 19 species of fish available in the nineteenth century (Chapter 1, Table 9), seven were identified at the Garden Site: the goldeye-mooneye, whitefish, sucker, sauger, freshwater drum, catfish and the burbot.

Domesticated mammals were represented by the horse, cow and pig. No sheep remains were recovered. Barley was the only domesticated plant identified at the site.

Ethnohistory

Specific examples in the archaeological record that parallel events in documented history are difficult to determine. Certain natural disasters, such as flooding, are perhaps the easiest to determine; however, in the case of the Garden Site, at least two floods were known to have occurred and it was virtually impossible to correlate the flood silts in the midden stratigraphy with a particular flood. Other, more general, events, such as reliance on the Hudson's Bay Company, are manifested in the number of Copeland ceramics and goods with trademarks of manufacturers who were suppliers to the Hudson's Bay Company, such as the John Ford pipe.

Evidence of 1870s construction techniques were displayed primarily by the chinking fragments which exhibited evidence of squared log timbers and by the fact that at least one of the buildings was white-washed.

Several clothing artifacts, especially beads and brass buttons, were recovered and these were listed as being part of the Metis dress during the nineteenth century.

Conclusion

Through the discussion of relative dates of occupation and by comparing the archaeological data with both the specific history of the site and general facts of past lifeways in the Red River Settlement, the results of the 1979 Garden Site excavations have been summarized. Because of the wide temporal span of utilization of most archaeological materials, it is difficult to compare historical documentation of individuals or populations with the artifacts they have left behind. A more fruitful means of site investigation is to combine the two research strategies in order to obtain a more complete view of past lifeways. This is, perhaps, the essence of historical archaeology -- rather than being the archaeology of the historic period, it should incline more toward the anthropological study of culture by the utilization of historic documentation and archaeological research.

Determining Site Ethnicity

Introduction

This section extends the objective posed in the last section of the third chapter beyond that of simply answering the question: Can one determine the ethnicity of the site occupants? During the excavations, and prior to recovery of documentation dealing with the history of Lot 81, it was not known who had created the three midden features, nor under what circumstances. It was not until historical records and census data were consulted that it was discovered that the Garden Site assemblage was representative of a Metis farmstead. It was fortunate that written records existed; however, the possibility exists that other sites of Metis affiliation do not have such detailed records, and interpretation must therefore rely on the site assemblage alone. The Garden Site excavations can be used as a comparative basis whereby future investigations can determine "site ethnicity".

Metis ethnicity

This work endorses the thesis of Sprenger (1972) who, using Barth (1969), states that:

> The Metis Nation was an ethnic group, and like any other ethnic group, its members could be recognized by certain distinguishing criteria (Sprenger 1972: 2).

This ethnic identity, from an "emic" point of view, was a manifestation of the "we/they" syndrome (Sprenger 1972: 15). From an "etic" standpoint, the distinguishing criteria include a combination of ancestry, language, religion, style of dress and certain historical traditions (Sprenger 1972: 17). Therefore, the Metis of the nineteenth century Red River Settlement comprised individuals of Indian-European ancestry, whose religion was Roman Catholic, whose language was French, and who possessed a traditional dress (see Chapter 2) that readily identified them as Red River Metis. This combination of culture traits formed the parameters for the Metis ethnic identity. It should be pointed out that in most discussions of the Metis, a distinction is made between the (French) Metis and English half-breeds, where the latter are often referred to as "Country-born" (Foster 1973: 73). Based on the above criteria, this distinction is substantiated by the fact that the English Half-breeds were predominantly Anglican, and English-speaking.

It could be argued that the use of criteria in attempting to label cultural groups is incorrect, just as it is to say certain prehistoric cultures had reached the point of "civilization" because their culture contained several required traits (cf., Childe 1942). However, the Metis thought of themselves as a distinct group of non-Native, non-Euro-Canadian individuals as is evidenced by the writings of such people as Pierre Falcon and Louis Riel (Sprenger 1972: 20-21).

Hence, it is our suggestion that since the Metis can be considered a distinct ethnic unit, this ethnicity should be reflected in the archaeological record and therefore, "site ethnicity" can be determined by way of comparisons with other sites of known Metis affiliation. This naming of site materials based on names of individuals contained within the documented sources has been called "site-unit ethnicity" (Mason 1976: 351). Another category of ethnicity, where a group of sites is named based on their geographical location within territory where historically known groups existed has been called "territorial ethnicity" (Mason 1976: 351). This latter category is perhaps the most useful in terms of the Red River Settlement as there was a definite geographical clustering of ethnic groups north and south of the forks (see Chapter 2). Therefore, since it has been demonstrated that the Garden Site artifacts were deposited by a Metis family, the question now arises: can the DkLg-16 assemblage be used on an inter-site comparative basis for establishing ethnicity at sites that have no historical documentation?

Summary of Metis assemblage (the Garden Site)

It is not known to what extent a Metis assemblage may overlap with any other ethnic assemblage. In theory it is possible, as several criteria that identify Metis could also be used to identify other cultural groups. For example, Roman Catholicism would also be a trait of French Canadians and it would follow from this that one or two shared traits might produce some overlaps in the resultant cultural assemblage.

Housing and construction artifacts

The presence of a large number of nails less than 2½ inches long suggests that some type of trim or finishing, possibly interior or exterior siding on the main dwelling, was present. Chinking fragments indicated (1) the former presence of three buildings, at least one of which was plastered and whitewashed, and (2) that some agriculture was being conducted near the site. The presence of window glass suggests that structures contained at least one window and as many as six were represented based on the number of pane glass types observed.

Household artifacts

A large percentage of ceramics was obtained from the Hudson's Bay Company, and since no two vessels with the same pattern were recovered, the vessels were likely procured one at a time rather than in sets. Several vessels displayed hand-painted designs and may have been brought to the site via freighting from the United States. At least five pipes were recovered and these were mainly of two materials, kaolin and coarse earthenware.

Clothing and ornamentation

A variety of buttons was recovered, including large brass buttons listed as part of the Metis dress. Other button types included bone, ceramic and shell. A large number of beads were also recovered and the total count of 546 made this artifact category the most numerous when compared to the total assemblage. Beadwork has been listed as a specialty of the Metis and this may be reflected by the large sample recovered at the Garden Site. Of this sample, plain white and pink beads were the most common and might suggest a cultural preference for these varieties.

Hunting and subsistence

A full range of arms-related artifacts was recovered, and at least three weapons were represented. The morphology of the lockplate indicated that it had been manufactured prior to the owner's arrival on the site and had undergone a variety of modifications.

Faunal material

A variety of fauna was suggested by the faunal remains. At least five species of fish were utilized; fifteen bird genera and species were also recovered, as were three species of small mammal. Large mammal was represented by four species and of these, only one, bison, was from the natural environment. This would indicate, therefore, that unless the wild mammals were processed away from the site (e.g., pemmican-making), fish and avifauna were the main food resources obtained from the natural environment. Butchering techniques, as illustrated by the domestic mammal ribs, showed a preference for the axe. Cut marks from a knife were also observed. Analysis of the ribs also illustrated that they were removed from the carcass and butchered with an axe.

Summary

The summarized results of the analysis from each artifact category have been discussed above to illustrate what artifacts can be expected at a Metis site. Perhaps the major difficulty that prevents any strong conclusions is a considerably small sample size; and although this may be a hindrance when attempting to establish DkLg-16 as a Metis type site, a small number of recoveries may at the same time be diagnostic of these sites. With the lack of other comparative sites, which is one of the reasons we are attempting to use DkLg-16 as a type site, it is not known how the Garden Site assemblage varies from other Metis sites. Its degree of fit will become evident as more data accumulate, but the major point is that we have demonstrated from historical records that from the mid-1830s to at least 1870, the site was occupied by a Metis family and archaeologically we have shown that the artifacts described above are also from this similar period and were therefore deposited by the Metis family. No single artifact was recovered that could be considered diagnostic of Metis ethnicity; however, since this ethnicity is characterized by a *combination* of cultural traits, then the *combination* of the artifacts recovered may be the diagnostic criterion, e.g., the type of nails found in combination with the type of ceramics which were recovered with an array of buttons and a large amount of beads, etc. Only further investigations elsewhere will strengthen or weaken our argument.

Conclusion

The analysis of the Garden Site included a detailed examination of the environment, ethnohistory and specific history of the site, plus a full description of the prehistoric and historic artifacts and faunal remains. Special analysis was also done of coprolites (non-human) and fabric specimens. The results of the artifact analysis were compared with the historical data to observe degree of similarity. Finally, the historical data were combined with the artifactual data to create a comparative sample for inter-site comparisons.

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1982

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